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AIR CONDITIONING & REFRIGERATION NEWS

The Industry

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UNIVERSITY MICROFILMS
313 N FIRST ST
ANN ARBOR, MICH.

Inside Dope

By GEORGE F. TAUBENECK

Learn to live and laugh — thus delay your epitaph

Stories of the Week
If Ike Is Re-Elected
Peter Gets His Patent
Another Dream Car
Guess What?

Stories of the Week

Friend who wished his identity protected tells us he received an invitation to a club affair through the mail. Enclosed with the invitation came a blue ribbon, gold-emblazoned: RECEPTION COMMITTEE.

Now, this fellow wouldn't have gone normally; because he knew the affair would be a frightful bore. But that RECEPTION COMMITTEE ribbon seemed to make it obligatory.

So he went. Guess what: Every member of the club was wearing an identical ribbon!

Smart psychology!

Such "dreams of valor" hath every man. But few could indulge. . . .

Orchestra Leader Phil Spitalny was cancelled out of his "act" at the Royal Nevada hotel in Las Vegas. He never forgot the insult. Recently he bought the hotel, fired the management!

If Ike Is Re-Elected

At this stage of the game we don't know who will be the Democratic nominee for the Presidency, nor the Republican nominee for the vice presidency.

So we aren't taking sides.

BUT, should President Eisenhower be re-elected, at least two things will happen which should benefit the United States of America.

(1) If the people decide that Ike, at the age of 65, is the best man for the biggest job in our country, the notion that older men are unfit for good jobs should be demolished. Today this prevalent notion is a tragedy —not only for older men, but for business and industry, too.

(2) Of necessity, loads of trivial, fol-de-rol tasks will be lopped off the President's duties, and for all time. It's silly for our President to waste several hours a day signing documents, crowning Cherry Pie Queens, being photographed with visiting firemen, listening to complaints of party ward-heelers, checking up on the work of hundreds of minor government bureaus, etc.

The President of the United States needs *time to think*. This he hasn't had, previously. At least, he hasn't had *enough time* to think.

Although it may sound heartless to make the following state-

(Concluded on Page 6, Col. 1)

Something For Everyone In This Trend: Let's Get With It

Presently available is a marketing concept which could prove to be a bonanza for our TOTAL industry. It is being promoted tentatively by a few major manufacturers and studied carefully by others. What is it? The "modernized kitchen"—sold as a prideful home improvement in an all-in-one financing deal.

When we involve the phrase, "our TOTAL industry," we mean that any specialty sales program for a refrigerated product reduces costs and advances profits of everybody connected with any segment of the refrigeration and air conditioning industry. That goes for commercial refrigeration jobbers, air conditioning contractors, yes, and servicemen, too.

Example: When more household refrigerators and freezers are sold, the manufacturers of components also used by commercial refrigeration and air conditioning can shave their prices, thanks to the extra volume. And,

(Continued on page 16)

Prices Climb on Copper Materials

DETROIT—Price increases on cooling coils, copper tubing, and various other brass and copper products used in the refrigeration and air conditioning industry have been coming through in a flood in the past week, as the base price of copper continues to rise.

Most manufacturers of cooling coils had announced a price increase of 5% on all products as this issue of the NEWS went to press.

Increase in copper tubing prices on a 3-cents-a-pound basis took effect on March 15. Last price increase had been made on Feb. 23.

It is reported that price boosts in flare fittings will go into effect the week of March 26. Some increases in shut-off valves, gate valves, and vibration eliminators

(Concluded on Back Page, Col. 5)

'Profile' Room Units Lead Kelvinator Line

DETROIT — Two new flush-mounted room air conditioners lead Kelvinator's seven-model air conditioner line for 1956, according to W. G. Kronauge, sales planning manager.

The "New Profile" models are RAC-86D, a ¾-hp. unit, and RAC-206D, a 2-hp. model.

"Draperies and curtains can be hung at the windows just as though the room air conditioners weren't there," Kronauge said, "because the 'new profile' permits flush-mounting with the window glass.

Projecting only 1¾ in. into the room, the air conditioners offer "decorating freedom plus comfortable air conditioning," he pointed out.

Both models have plastic fronts in soft sandalwood color that blends with modern and traditional decors.

(Concluded on Page 4, Col. 4)

83 Packaged Units To Handle World's First Completely Conditioned Clothing Factory

BLOOMFIELD, N. J. — H. Daroff & Sons, manufacturer of "Worsted-tex" and "Botany 500" Cloths, will have "the first completely air conditioned clothing plant in the world" in operation this summer, it was disclosed here.

A half-million-dollars worth of General Electric packaged air conditioning units, totaling more than 1,100 tons, are to be installed in Daroff's Philadelphia plant to provide conditioning, temperature, and humidity control to meet the specific requirements of the clothing plant.

The installation will be made by Republic Air Conditioning Co., Philadelphia. The G-E units will be placed on platforms suspended from the ceiling, thereby requiring none of the floor space now in use.

Almost no ductwork will be installed. The air will be distributed from the units by standard air distributor plenums. A total of 83 standard G-E units will be used.

According to Michael Daroff,

(Concluded on Page 29, Col. 4)

Mfrs. See Record Conditioning Year

DETROIT—The year 1956 is going to be the best year yet for the air conditioning industry, manufacturers are already forecasting.

1956 will set a new record for air conditioning installations if the current rate of sales is maintained throughout the spring, according to Jack Cherry, manager of air conditioning sales for Philco Corp.

(Concluded on Page 4, Col. 1)

RCA Whirlpool Has 5 Freezers for '56

ST. JOSEPH, Mich.—Details on the RCA Whirlpool 1956 line of vertical and chest food freezers were announced recently by Whirlpool-Seeger Corp. The line comprises two vertical and three chest models.

Food storage capacity of the new freezers varies from 420 to 700 lbs. and net storage volume from 12 to 20 cu. ft. Suggested retail prices range from $379.95 to $599.95.

An airtight door on all models keeps cold in and heat out. Pre-set at factory, temperature control is designed to maintain constant zero under normal op-

(Concluded on Back Page, Col. 1)

Detroit May Put Demand Charge on 'Water Wasters'

DETROIT—This city's Board of Water Commissioners proposes to fix a use demand charge on operators of "water-wasting" air conditioning equipment, Gerald Remus, general manager of the Department of Water Supply, has announced.

If the proposal is adopted, charges based on the ton rating of the equipment would go into effect Jan. 1, 1957. That year, a charge of $5 per ton of refrig-

(Concluded on Back Page, Col. 2)

NEMA Reports 724,454 Freezer Sales for 1955

NEW YORK CITY — Home freezer sales during 1955 increased 8% over 1954 for the 20 to 22 manufacturers reporting their sales to the National Electrical Manufacturers Association.

The 724,454 freezers sold by these producers were 9% less than in 1953 and 12% under 1952. In the latter year, the freezer industry reached high water mark with 24 manufacturers selling 814,086 freezers.

For 1955, sales within the United States rose 7% over 1954, while sales by these firms to Canada rose 61%. Their sales to other foreign countries gained

(Concluded on Page 8, Col. 1)

Westinghouse Plants Resume Production

PITTSBURGH—Production of Westinghouse appliances and replacement parts at four plants idled by the IUE strike was resumed within 24 hours after the strike ended last Tuesday, it was announced by C. J. Witting, vice president and general manager of consumer products divisions.

The company and the union agreed on new five-year contract terms, with annual wage increases and provision for time studies of day work operations. The strike lasted 156 days.

"Every effort is being made to step up production considerably beyond pre-strike levels at all consumer product plants in order to satisfy the pent-up consumer demand for Westinghouse products and to replenish the inventories of Westinghouse dealers and distributors as quickly as possible," Witting said.

Major appliance plants at Mansfield and Columbus, Ohio, will step up production in the near future by at least 35% be-

(Concluded on Page 29, Col. 3)

Servel Gas Unit Heats, Cools with One Heat Exchanger

CHICAGO — A gas-operated all-year air conditioner that provides both heating and cooling through a single heat exchanger was introduced to the trade here recently by Servel, Inc.

The combination is a 3-ton gas absorption unit that produces 40,000 B.t.u.h. of cooling and 96,000 B.t.u.h. of heating with natural gas.

Introduced at the same time was a new 25-ton absorption water chiller incorporating its own factory-assembled operating and safety controls.

The "Sun Valley," as the 3-ton residential air conditioner is called, occupies only 10.4 sq. ft. of floor space, according to An-

(Concluded on Page 25, Col. 1)

BEHIND PAGE ONE . . .

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More Profits with **Warren** SUPER MERCHANDISERS . . .

all one height for every department!

Holds 72 qts. milk or 49 doz. eggs per lineal ft. of bottom deck. Gives a 20% refrigerated cube advantage. Two refrigerated decks adjustable for heavy or light loads, plus nonrefrigerated deck. 8 or 11 ft. long.

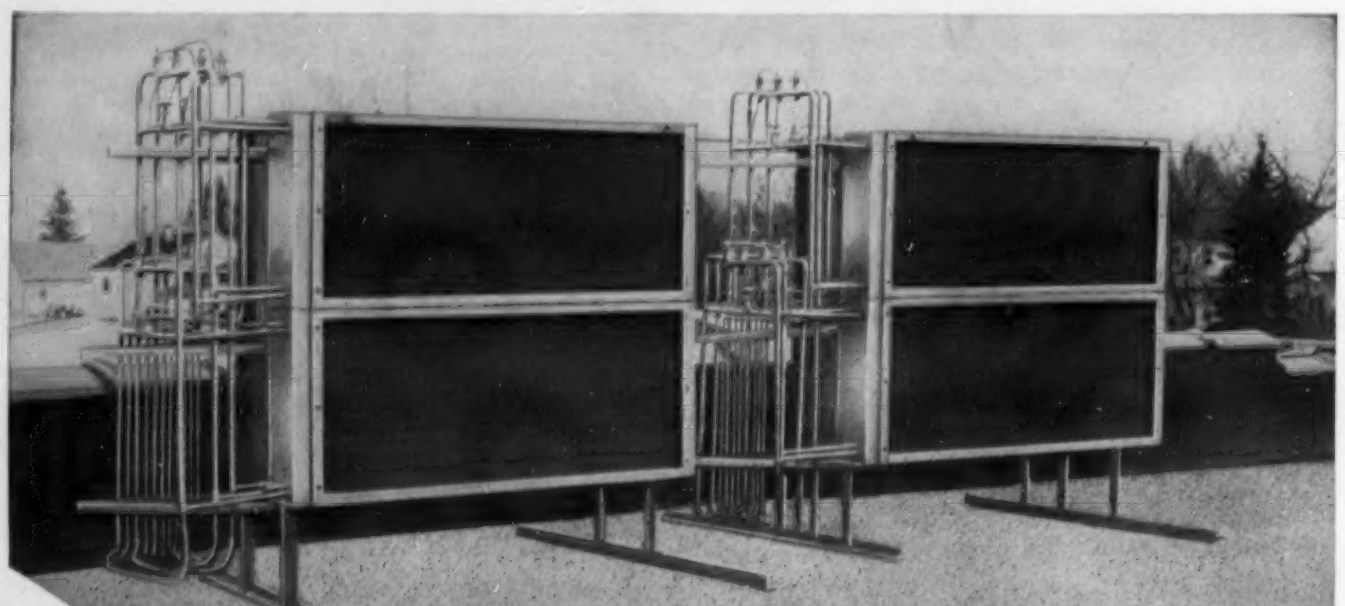
island merchandiser

On wheels for top mobility . . . just plug in for quick changes and quick sales. THERMOPANE display guards, stainless trim, ½ HP unit. 32° with no strain. . . a top performer . . . a top profit maker always.

39¼" shopping rail for maximum cube and full-width reach. Low 41" rear height . . . rear rail 5" wide to serve as platter rest. With or without numerous canopy styles.

Warren Refrigerators

P.O. BOX 1436, ATLANTA 1, GA.



KRAMER

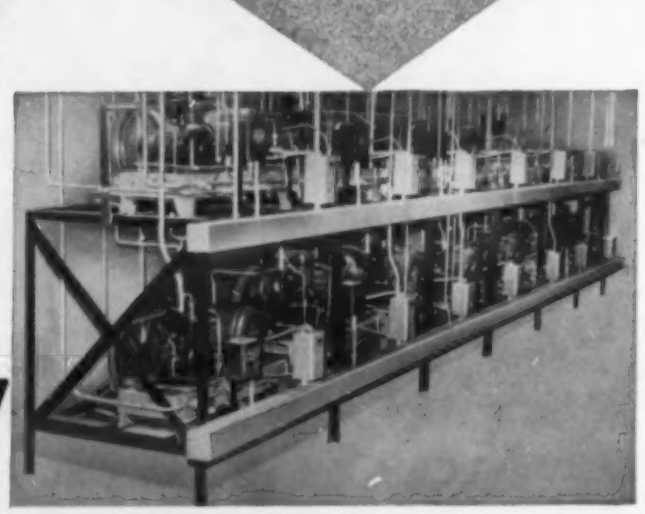
UNICON FOR SUPERMARKETS

Serves 14 Compressors
Winter and Summer
WITHOUT ANY WATER*

Photographs of UNICON installation at Trimborn's Supermarket, Hales Corner, Wisconsin

Installed by Real Refrigeration Sales and Service, Milwaukee, Wisconsin

Units furnished by Wisconsin Refrigeration Supply Company, Milwaukee, Wisconsin



WRITE FOR BULLETIN U-291

**UNICON is a Remote-Type Air-Cooled Condenser*

KRAMER TRENTON CO. • Trenton 5, N.J.

Cooling, Refrigeration Wholesalers Up January Sales 21% Over '55 Mo.

WASHINGTON, D. C. — Distributors of air conditioning and commercial refrigeration equipment sold 21% more merchandise during January than they did in January, 1955, but 2% less than in December, the U. S. Bureau of the Census reported recently.

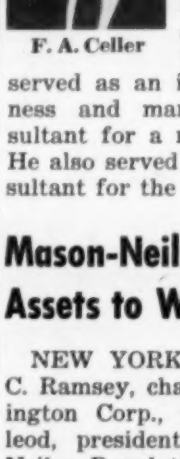
Distributors of electrical appliances, television and radio sets and parts, and electronic equipment and parts increased their sales 11% over January, 1955 but dropped 16% below last December.

Air conditioning and commercial refrigeration equipment distributors' inventories were up in January 17% over the same month last year, and rose 4% over December.

Electrical appliances, TV and radio sets and parts, and electronic equipment and parts distributors boosted inventories 22% over a year ago January and 5% over December.

BTC Names Celler To Head Sales

CORTLAND, N. Y.—The election of Frederic A. Celler as vice president in charge of sales has been announced by James H. Greene, president of The Brewer-Titchener Corp. here.



F. A. Celler

The new vice president joined Brewer-Titchener in 1954 as general sales manager. Prior to this, he served as an independent business and manufacturing consultant for a number of years. He also served as a special consultant for the Marshall Plan.

Mason-Neilan Transfers Assets to Worthington

NEW YORK CITY — Hobart C. Ramsey, chairman of Worthington Corp., and Eldon Macleod, president of the Mason-Neilan Regulator Co. of Boston, announced recently an agreement for the transfer of the net assets, name, and goodwill of Mason-Neilan to Worthington in exchange for Worthington common stock. The agreement is scheduled to go into effect on or about March 30.

Ramsey stated that the Mason-Neilan plant and facilities would be operated as the Mason-Neilan Div. of Worthington, and that the entire working force and management staff will be continued.

The full line of Mason-Neilan products will continue to be manufactured. These include instruments and valves designed to control the pressure, temperature, and flow of the liquids, gases, and components incident to industrial processes.

Among them are indicating, controlling, and recording instruments, flow meters, diaphragm control valves, servomotors, pressure regulators, pump governors, filters, and other specialties.

For more information about products advertised on this page use Information Center, page 22.

PUSHBUTTON "Constellation" automatic window air conditioners in ¾, 1, 1½, and 2-hp. models highlight the 1956 Fresh'nd-Aire line

CASEMENT air conditioners in the "Constellation" line are available in ¾ and 1-hp. units with full-width condensing coils.

6 Window Units Lead Expanded Fresh'nd-Aire Line

CHICAGO — "Constellation" pushbutton automatic room air conditioners will be the top series in the expanded 1956 Fresh'nd-Aire Div., Cory Corp. line, according to J. W. Alsdorf, president.

Window air conditioners will be available in ¾, 1, 1½, and 2-hp. models, casement units in ¾ and 1 hp.

A sales innovation, say Cory sales executives, is a program under which electric housewares, hardware, building supply, and other non-specialty distributors can stock and sell air conditioners at a price "competitive with major appliance franchise distributors" without the necessity of placing extensive franchise commitments.

Pushbuttons Choose 'Correct Comfort'

Pushbuttons on Constellation series air conditioners permit users to choose "correct comfort" with automatic control of room temperature and air circulation as desired, it was stated. These units perform eight separate functions, the firm claims, high and low-speed "supercooling," cool-fresh air, ventilation, and exhaust.

A thermostat can be set to turn the room unit off at certain desired temperature level, or can be turned to "constant control" to keep air conditioning on all the time, the company said.

'Quiet-Master' Lowers Room Unit Noise

"Quiet-Master," a combination of blower wheel and soundproofing material on the bulkhead "lowers the decibel level so even a light sleeper won't hear the air conditioner operate," the firm declared.

Fresh'nd-Aire window models can be mounted flush so they extend into the room less than 3 in., it was pointed out. New units also have an adjustable arrangement for nearly flush mounting outside.

"Full-dimensional air diffusion cascades air rapidly into all parts of a room due to new style louvers," the firm continued. "Upper right and left louvers can be adjusted to change air direction."

Casement models have a face grille which snaps in and out to change air stream direction 90° left or right, or 180°. A "Style-Gard" plastic front accessory panel fits into place when the air conditioner is not in use. Two large filters "remove most of the dust, lint, pollen, dirt, and smoke before it passes through the condensing coil," it was noted.

New Constellation models have full width cooling condensing coils, are UL approved, come in plastic cabinets decorated in sand tan beige with gold trim and each pushbutton a different pastel color, the firm said.

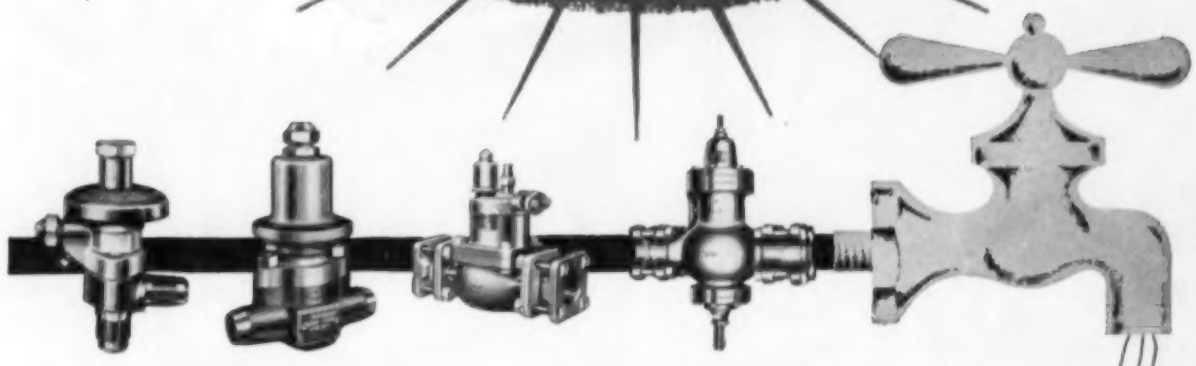
The "Deluxe" series automatic pushbutton room air conditioner with either flush or adjustable mounting is again available in ¾, 1, and 2-hp. sizes.

"This year we offer the most comprehensive line in Fresh'nd-Aire history," Alsdorf stated. "With a new expanded line and new competitive distributor and dealer prices, we expect to account for a greater percentage of industry sales in the coming months."

In the Constellation series, ¾-hp. window model A634 is priced at $359.95 for either the 115 or 230-volt unit. A610 230-volt 1-hp. model is set at $399.95, A615 230-volt 1½-hp. model at $459.95; and A620 230-volt 2-hp. unit will retail at $499.95.

Casement air conditioners in the series have a retail price for both the 115 and 230-volt ¾-hp. model K634 of $359.95 and model K610 230-volt 1-hp. unit is set at $399.95.

"anti-freezers"
FOR YOUR WATER COOLERS



ALCO evaporator pressure regulators

They maintain constant evaporator pressure under all load conditions.

Result: Efficient cooling without freezing—no busted coolers!

For any size water cooler from drinking fountains to large industrial jobs.

WRITE FOR BULLETIN 183-54

ENGINEERED FOR SERVICE FOR LIFE

SEE YOUR ALCO WHOLESALER

ALCO VALVE CO.
853 KINGSLAND AVE. ST. LOUIS 8, MO.

Designers and Manufacturers of Thermostatic Expansion Valves; Evaporator Pressure Regulators; Solenoid Valves; Float Valves; Float Switches.

6316

Cooling Mfrs. See Top Year--

(Concluded from Page 1, Col. 3)

"Philco shipped more room air conditioning units during the week ended March 10 than during any previous week since the company entered the air conditioning business in 1938," Cherry said.

"This record exceeds shipments in even the hottest weeks of mid-summer in past years and was 15% over the previous record set in mid-July, 1955."

Shipments of units in the week ended March 17, Cherry added, were 80% ahead of shipments during the same week last year.

Mason M. Roberts, General Motors vice president and head of Frigidaire, echoed these thoughts. He saw 1956 as a "record-breaking year for the air conditioning business.

"Both old and new homes without air conditioning as well as uncooled automobiles, will be rendered completely obsolete throughout two-thirds of the country in less than 10 years," he added.

Cloud Wampler, board chairman for Carrier Corp. asserted that the nation has entered the year of the great breakthrough in central air conditioning of residences with sales now beginning to affect large sections of the American public.

Central comfort system installations will increase to about 200,000 for the year or about one in every six homes constructed, he predicted. Total retail value of these systems will amount to $330 million.

Sheldon Coleman, president of the Coleman Co., reports that new orders in the past six weeks have been running 35% ahead of last year. One big reason, he says, is the company's expansion into central air conditioning.

Specifications Corrections

A correction to the specifications on General Electric commercial air conditioning units published on page 3B of the March 12 issue of the NEWS is offered by the Commercial and Industrial Air Conditioning Dept., General Electric Co.

The horsepower rating on the compressor motor for the model FCA30 should be 5 hp. instead of 3 hp. The rating on the motor for the model FCA50 should be 7½ hp. instead of 5 hp.

Models FCA30, FCW30, FCW50, FD30, and FD50 are also offered in 208-volt models.

* * *

Typhoon Air Conditioning Co. reports that its residential models on page 11B listed by the letter designation LSU, should read 2 AACU-LSU, 3 ACCU-LSU, etc.

CURTAINS and draperies may be hung easily, it is said, because "new profile" design of Kelvinator room air conditioner permits flush-mounting with glass in any window in the home. The ¾-hp. unit has maximum cooling capacity of 500 sq. ft. Individually adjustable louvers permit air flow to be directed anywhere desired.

Kelvinator 'Profile' Room Units--

(Concluded from Page 1, Col. 2)

A single dial on the front of the RAC-86D provides simple control of all operations including adjustable thermostat, fan, and on-off positions, it was noted. Cool air flow may be directed in any direction through adjustable intake louvers.

Model RAC-206D has concealed pushbutton controls with automatic adjustable thermostat in the front. It is powered by two 1-hp. compressors which are operated either together for maximum cooling or separately for savings in mild weather, Kelvinator said.

Three models in the "Furniture-Fashioned" design provide a "living room look" through leather-textured drop-fronts that close to hide air directors when the unit is not in use.

Cabinet fronts, made of sandalwood colored plastic, have a drop-front door that is covered with mahogany leather-grained vinyl, highlighted by a gold-colored frame and door knob.

These models are the ¾-hp. RAC-85S, the 1-hp. RAC-105S, and the 1-hp. RAC-105D with heater.

Another model, the ¾-hp. RAC-86C, is designed to fit any standard vertical casement window and can be mounted in a "half-out" position or in a fully-inside position so that the window can be closed. A special adapter kit and leg set is available for inside mounting. Automatic pushbutton controls are out of sight behind a door on the front.

An open-front model, the 1½-hp. RAC-155D, has been designed especially for users who operate their air conditioners almost continuously.

Cabinet front is in sandalwood-colored plastic to blend with any home or office motif. The model has top-mounted pushbutton controls and three louvered air directors.

U. S. Steel Will Plug Home Conditioning On TV Mar 28

WASHINGTON, D. C.—United States Steel Corp., on its Wednesday, March 28, television program, will devote two commercials to the advantages of air conditioning for the home, according to the Air-Conditioning & Refrigeration Institute.

The program, which starts at 10 p.m. (EST), will be carried on the full CBS national network of over 140 stations with an estimated audience of 25,000,000, it was pointed out.

Mary Kay and Johnny, the U. S. Steel selling team, will use a 2½-minute commercial on year-round systems at the end of the third act, and a 1-minute closing announcement on room air conditioners.

For air clean and fresh as Springtime

a better ½-inch air filter for today's improved air-conditioning units

Here it is . . . American Air's attractive, new *GREEN* AMER-*glas* filter, a *true* air-conditioning filter! It passes every rigid test for minimum air resistance and maximum dirt-catching power with flying colors!

MANUFACTURERS have gone to much trouble and expense to improve their air-conditioning units. Now AAF has called upon its many years of research and know-how to provide an improved, attractive filter developed especially for today's air conditioners. Leading manufacturers have long depended upon AAF to help solve their problems.

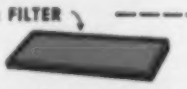
DISTRIBUTORS AND DEALERS are already stocking this new *GREEN* filter as a standard replaceable AMER-*glas* product, ½" thick only, in a complete range of sizes.

A FILTER FOR EVERY NEED. Whatever your requirements, American Air has AMER-*glas* filters in every size and shape ready for immediate delivery. Call us without obligation.

AAF herman nelson

American Air Filter
COMPANY, INC.
Louisville 8, Kentucky

WRITE TODAY FOR FREE AMER-*glas* FILTER



American Air Filter Co., Inc.
109 Central Ave., Louisville 8, Ky.

Please send us sample and complete information on new GREEN filter.
We are a ☐ Manufacturer ☐ Distributor.

NAME_____

COMPANY_____

ADDRESS_____

CITY_____ ZONE____ STATE____

For more information about products advertised on this page use Information Center, page 22.

Produce Pre-Packaging Looms Larger After Blooming to 30% of '55 Sales

WASHINGTON, D. C.—About 30% of all fresh fruits and vegetables sold to the consumer in 1955 were pre-packaged, it was declared at the Super Market Institute's eastern regional manager's meeting on produce, held here recently.

This will swell to 70% within five years, was one reported forecast.

Growing rapidly, pre-packaging of produce and use of high quality merchandise is becoming an even greater factor than formerly, it was emphasized.

Peter Makian, produce division head of Star Market Co., Newtonville, Mass., who made the above prediction, further asserted that the rate of pre-packaging increase will basically "be influenced by one—and only one— major factor—quality of merchandise we sell," the report went on.

Only top quality items should be pre-packaged, said Fred I. Lemmerman, general manager of Good Deal Super Markets, Irvington, N. J. Self-service merchandise should be sold "with a guarantee on every article."

He listed benefits on self-service produce to both the supermarket and homeowner, stating that "it is the modern way to sell produce 100% self-service," and it results in extra profits.

A pre-packaging consultant from Tampa, Fla., Ezra Lapides, believes it is possible to have as high as 30% gross profits in the produce department, to have 12 to 15% total store volume, and to limit the waste factor to 1½% and the labor factor to 7-8%.

Vincent D'Anna, assistant produce buyer of Eddie's Super Markets, Inc., Baltimore, pointed out that self-service items must be eye catching to be self-selling.

Speaking to the group on "How to Maintain Garden Freshness in Produce," Dr. R. E. Hardenburg, Agriculture Dept. horticulturist, indicated that fresh fruits and vegetables are "alive and breathe." Produce with the highest respiration rates are the most subject to deterioration, he said.

He declared that although refrigeration generally is a method of slowing down the life process of produce, different types of produce have different temperature and moisture requirements.

NFFLI Western Meeting April 8-10

ELIZABETHTOWN, Pa.—The National Frozen Food Locker Institute will sponsor its first regional convention at the Mark Hopkins hotel in San Francisco April 8-10.

Although this will be a Western Regional Convention in locale, its program and activities will be of interest to all locker plant, frozen food center, and freezer food supplier operators, according to Berl Buis, NFFLI president.

The convention's theme, "Prospecting for Profits," and program will be patterned after the national convention held in Cincinnati last fall. The program will include addresses by industry leaders, discussion meetings, meat cutting demonstrations, exhibits, entertainment, luncheon banquet, and other events.

Among exhibitors will be Amana Refrigeration, Inc.; Marquette Appliances, Inc.; Philco Corp.; RCA-Whirlpool; Simplex Mfg. Co.; Sub-Zero Freezer Co., Inc.; United Refrigerator Co.; and Westinghouse Electric Corp.

More Refrigeration Seen In Oil Industry

PHILADELPHIA — Increased use of refrigeration equipment in the petroleum industry was forecaste in a paper presented by Dr. Charles H. Brooks of Sun Oil Co. at a recent meeting of the Philadelphia Section, American Society of Refrigerating Engineers.

The paper, prepared by Dr. L. W. T. Cummings and Dr. Brooks, pointed out the numerous applications of refrigeration in the petroleum industry and the variety of equipment used.

Dr. Brooks predicted an increase in the temperature range used in the industry as a greater knowledge of refining techniques is gained. This means lower temperature equipment than previously used in refineries and consequently greater use of refrigeration equipment, it was pointed out.

E. J. Urban Named

UTICA, N. Y. — Edward J. Urban was recently named Chicago district manager by American Emblem Co., Inc.

PRESSTITE
MASTIC SEALERS

- Seal seams
- Deaden sound
- Bulk, bead, tape or semi-liquid
- Apply by hand, spray or flow

See your wholesaler or WRITE

PRESSTITE ENGINEERING CO.
3774 CHOUTEAU AVE. • ST. LOUIS 10, MO.

1906

The hand-operated washing machine was a boon to the busy homemaker in 1906 . . . the year the first *Brunner-engineered* product was manufactured.

TODAY

Engineered dependability

. . . built into every Brunner Condensing Unit.

PROVEN QUALITY
50th Anniversary
BRUNNER
SINCE 1906
DEPENDABLE

THE BRUNNER COMPANY, GAINESVILLE, GA.
BRUNNER MANUFACTURING COMPANY, UTICA, N. Y.
IN CANADA: BRUNNER CORP. (CANADA) LTD.
TORONTO, ONTARIO

There's a Brunner-Metic semi-hermetic condensing unit for every commercial refrigeration requirement . . . available in models from ¼ H.P. through 3 H.P. Open-type units ⅛ through 100 H.P.

Inside Dope

By GEORGE F. TAUBENECK

(Concluded from Page 1, Col. 1)

ment, it could be true: Ike's heart attack may have been a blessing in disguise for the long-term future of our nation.

Peter Gets His Patent

Our favorite inventor, *bon vivant* and all-around "character," Dr. Peter Schlumbohm of New York City, finally has received U. S. Patent No. 2,734,588 on his radically-designed automobile.

Dr. Peter thinks Detroit cars look too much like a dachsund (a lovable dog, incidentally). His tentatively-named Chemobile is shaped more like a bulldog, or a fat Persian cat.

It has the same width but only 60% of the length of an orthodox Detroit-type auto. Both parking and U-turns will be simple and easy, thanks to this design. There are two frames, one for the wheels; the other for the body. The motor is suspended below each *in the middle.* Between motor and body is an air space, within which a blower forces a draft of cooling air.

"One has to provide powerful heat-dissipating means," Dr. Schlumbohm explains; "otherwise the passengers would be sitting on a stove."

Dr. Schlumbohm's Chemobile has one front door (at the right) and two rear doors. Absence of the left front door permits omission of posts, and gives the driver a clearer view of his road hazards than any motor car now on the market.

Inventor Peter, holder of many refrigeration patents and a prosperous manufacturer already, has taken delivery of a 1956 air conditioned Cadillac, incidentally. It will have to make do until he can build a full-scale model of his Chemobile.

Another Dream Car

A Catholic priest has designed what he terms the "safest car in the world," and he hopes to have it in limited production within six months. Fr. Alfred S. Juliano of the Holy Ghost Fathers (Connecticut) calls his creation the Aurora. It will be manufactured in Connecticut by the Juliano Custom Cars, Inc., of which Fr. Juliano is honorary chairman of the board and director of design.

His projected six-passenger, four-door sedan is expected to sell for "$12,000 and up." The vehicle is 18 ft. long, with a body of fiber glass. It has 10 small headlights (which give the appearance of a neon tube across the front) to increase visibility, diffuse light over a wider area, and cut glare.

The windshield slants backward, instead of forward, to reduce sun-glare, give better visibility during snow and rain, and to protect passengers from injury in case of an accident.

The roof is made of clear plastic for greater visibility and incorporates a racing car roll-over bar.

Guess What?

We wouldn't know, of course, whether or not you read those little items many newspapers use as "filler" material. If you don't, you're missing the opportunity to pick up a lot of fascinating information.

For instance, glancing through *The New York Times* recently, we were astounded to learn that there are 10,000 species of lichen, rock-growing plants found in many parts of the world including the Far North. Gad, we had no idea!

We also were advised that American women use enough lipstick every year to paint 40,000 barns. This is interesting—but not too surprising—information.

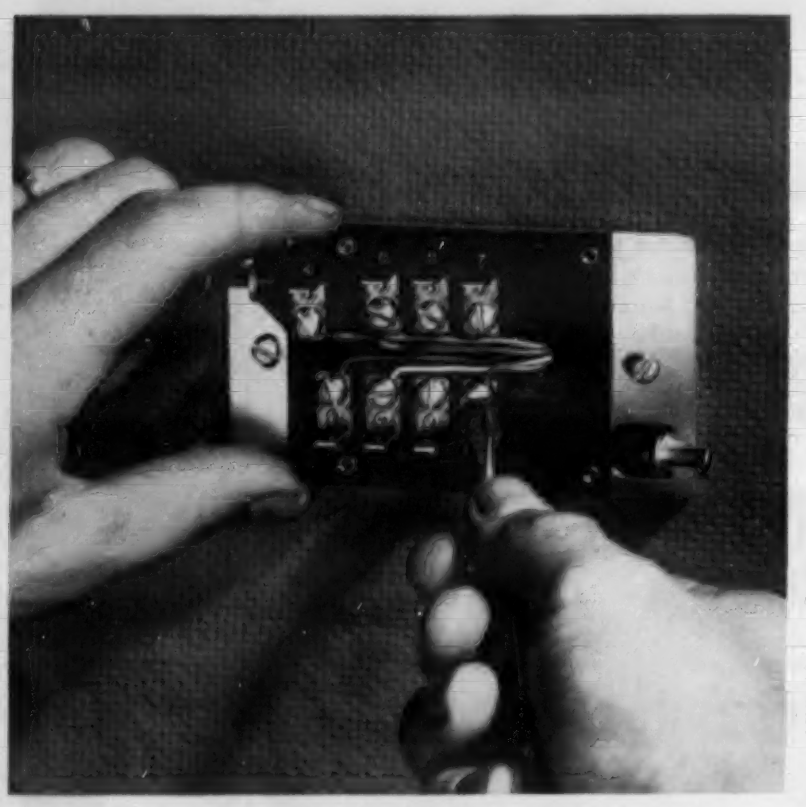
Another filler in the *Times* informed us that elephants on Sumatra have habits highly irritating to managers of pioneering oil companies. Sometimes the big beasts rip up unburied oil pipes. Again, they pull down telephone wires, tangling them up like spaghetti as they scratch their backs against the poles. As Mel Allen would say, how about that!

Reading these fillers closely, you could also learn such other absorbing facts as these:

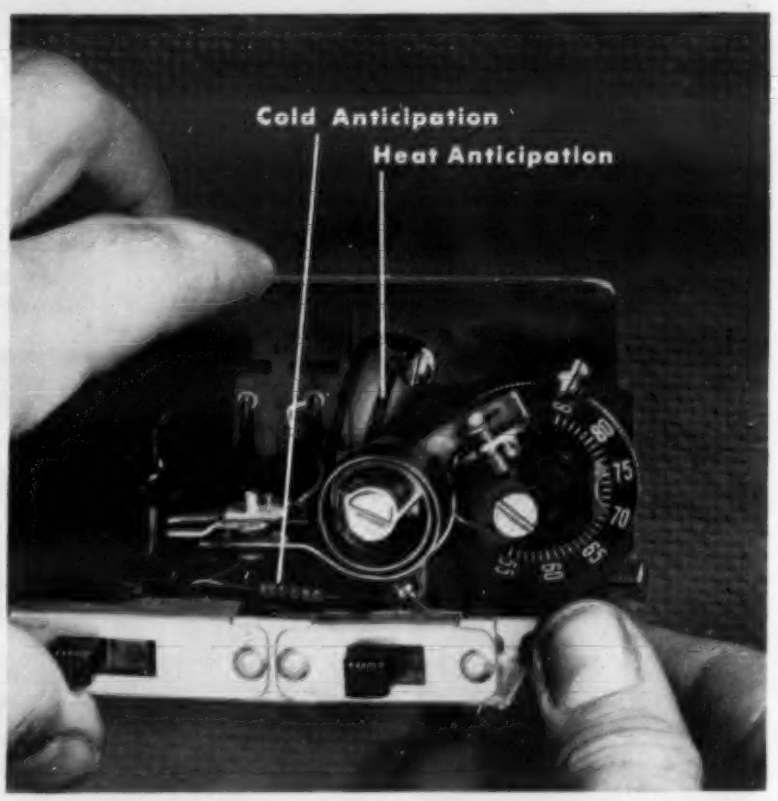
In the past few years more than 40,000 farm tractors have been imported by Turkey . . . minute traces of the atmosphere extend 600 miles above the earth's surface . . . the Escalante, Utah's river of arches, makes such sharp loops and turns in places that it can travel half a mile yet be only 50 yards from where it started . . . the flying foxes of New Guinea are the world's largest flying mammals . . . South Carolina has 3,195 miles of railroad.

Thanks to other fillers, we now know that Alexis Clauraut, great French mathematician who died in 1765, wrote his first treatise at the age of 12, and that Felix Mendelssohn composed a cantata at the age of 11, a symphony at 15, and the Midsummer Night's Dream Overture at 17.

It might seem that data of this sort is rather useless. But you never know . . . you might find it quite valuable if you appear on one of the TV quiz shows. If any of the above information helps you win the Columbia Broadcasting System itself (or haven't the prizes gotten that high yet?), you'll owe us nothing. It's just one of our regular services to loyal readers.



Separate Circuits: With its built-in separation of heating and cooling circuits, the Penn Series 880 meets all code requirements — without the extra cost of a heating relay.



Cold and Heat Anticipation: Penn maintains closer temperature control. Heat anticipation holds heat within one degree . . . cold anticipation limits cooling variation, keeps relative humidity low.

PENN HEATING and COOLING THERMOSTAT GIVES YOU 3 BIG SALES ADVANTAGES

Easy to Install: Just 3 simple steps. First, make all connections on mounting base. Then "push" thermostat on base and, third, place cover on thermostat.

No extra heating relays needed... easier installation... and closer control of temperatures make Penn your best buy!

Yes, only Penn gives you all these sales advantages. Then, too, the Penn Series 880 embodies snap-acting magnet contacts, still best for long life and trouble-free operation. And, there are many other reasons why more and more manufacturers of packaged year-round air conditioning choose Penn Controls.

You can depend on Penn because every control is backed by more than 20 years of experience in designing and manufacturing both heating and cooling controls. So be sure that the year-round air conditioning systems you sell and install are equipped with Penn Controls.

PENN CONTROLS, INC.

Goshen, Indiana

Automatic Controls For Heating, Refrigeration, Air Conditioning, Gas Appliances, Pumps, Air Compressors, Engines

For more information about products advertised on this page use Information Center, page 22.

Michigan Homemakers' Survey Shows

Dating Items, Better Size, Faster Defrost Would Help Prepackaged Meats

LANSING, Mich. — Nearly 4,000 Michigan housewives believe prepackaged fresh and frozen meat is not wholly satisfactory, according to a recently completed survey by Michigan State university agricultural economists.

Chief concern of homemakers surveyed in Flint and Grand Rapids was sufficient assurance prepackaged meat was fresh. It was suggested dating each package was one way to build confidence in freshness, the report added.

Shoppers would prefer to see both sides of the cut. They suggested that placing best side of the meat down would allay doubts as to hidden bone or fat.

Suggestions Offered

Many suggestions to make prepackaged service more acceptable to consumers were offered on questionnaires mailed during the first two months of 1954, and returned to MSU. Harold M. Riley and Robert C. Kramer, who conducted the study, said they now have prepared a comprehensive brochure "What Consumers Are Saying About Prepackaged Fresh and Frozen Meats."

Better selection of package size was another gripe by housewives. It was an important consideration in the view of many of those answering the survey, they report went on. In order to meet the exact needs of widely varying families, there should be considerable divergence in thickness and size of cuts.

Cooking Instructions Should Be Added

Adding cooking instructions on packaging labels would be a valuable assistance, some indicated, particularly on those cuts having special characteristics and not of the commonest type.

Time necessary to defrost constitutes main disadvantage of frozen meats, according to the consensus.

Approximately 62% of Flint families, and 69% of those in Grand Rapids surveyed preferred regular butcher service over prepackaged merchandise. Just 24% of those in Flint and 19% in Grand Rapids liked prepackaging better, and 14 and 12%, respectively, had no choice, it was revealed.

However, those who largely patronized prepackaged service were well sold on it, the report pointed out. The 1955 survey showed almost 53% of families buying three-fourths or more of their meat prepackaged preferred it that way.

Reasons given for purchasing these offerings were preference of supermarkets where only such items are sold, and lack of "satisfactory" butcher service conveniently available. Other reasons included quick shopping, convenient size selection, assured sanitation, free examination of meat, and less bone, according to the university's study report.

Dissatisfaction with available prepackaged items influenced replies in favor of butcher service, many admitted in the survey. They said they would like to see both a service meat counter and a prepackaged counter in markets they patronize.

Heaviest sales, it was noted, of frozen meats were among shoppers under 30 years of age.

Freez-King Names Evans, Stiller to Sales Posts

CHICAGO — Freez-King, Inc. here has announced the appointment of Mark M. Evans as sales manager and Martin E. Stiller as assistant to the sales manager.

Evans comes to Freez-King from Mills Industries, Inc. He served Mills most recently as zone sales manager.

Stiller was most recently acting sales manager in the freezer division of Mills Industries.

NCRSA To Meet Dec. 3-4; 17 New Members Added

SAN FRANCISCO—Tenth annual convention of the National Commercial Refrigerator Sales Association will be held at the Mark Hopkins hotel here Dec. 3 and 4, the group has announced.

Ray Winther is chairman of the convention committee.

Addition of 17 new members to NCRSA ranks has also been announced.

These include:

A-1 Refrigeration, San Jose, Calif.; Black & Woodyatt Refrigeration, Ltd., Brantford, Ont., Can.; Tom Cannon Co., Columbus, Ohio; Stanley S. Cheever Co., Salt Lake City; Gardner's Refrigeration, Schenectady, N. Y.; Girlamo Refrigeration Co., Philadelphia; Parson Refrigeration Co., Ottawa, Ont., Can.; Plan-ex Corp., Lubbock, Texas; Polar Refrigeration, Vancouver, B. C., Can.

Potel Store Equipment Co., Hartford, Conn.; W. T. Rainford, Ltd., Vancouver, B. C., Can.; Refrigeration Appliances, Inc., Atlanta; Frank Samuels Distributing Co., Phoenix, Ariz.; Standard Agencies, Ltd., Montreal, P. Q., Can.; Stearns Fixture Co., Rockford, Ill.; Storecraft, Inc., Corpus Christi, Texas; and United Refrigeration, Inc., New Orleans.

Bush Votes Dividends

WEST HARTFORD, Conn.—The board of directors of Bush Mfg. Co. recently voted to declare the following stock dividends:

Fifteen cents per share on the common stock; 28⅛ cents per share on the 4½% cumulative convertible prior preferred stock; 31¼ cents per share on the 5% non-cumulative preferred stock.

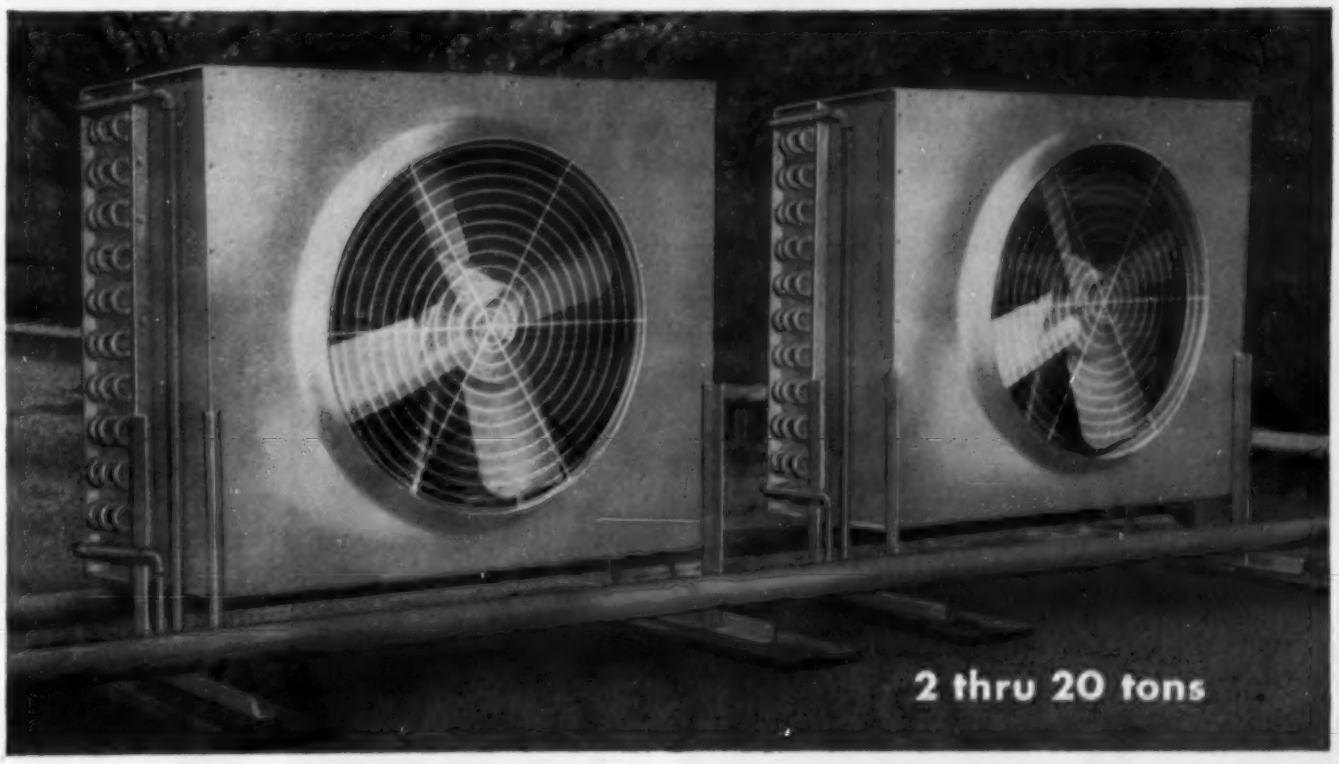
IDEAL
Speed-Freeze
PRODUCTS

BEVERAGE COOLERS AND INSTANTANEOUS DRAFT BEER COOLERS.
(With Refrigerated Faucets)

WRITE
IDEAL COOLER CORPORATION
3953 EASTON AVE • ST. LOUIS 6, MO.

So Halstead & Mitchell Engineers said:

"LET'S GIVE THIS INDUSTRY A BETTER AIR-COOLED CONDENSER"



Now we proudly call to your attention the Halstead & Mitchell Air-Cooled Condenser for waterless air conditioning and refrigeration. This is today's *better* remote Air-Cooled Condenser.

It is engineered to a new principle called "Co-ordinated Design," and this is engineering pioneering which has coordinated capacity, performance, structural design and appearance to give:

1. Extra-Safe Capacity Ratings — made possible by a unique "dimpled" fin *giving 15% added heat transfer*, as well as a core designed for higher air volumes at lower fan speed.

2. Extra Years of Working Life — insured by exclusive, proven Halstead & Mitchell protection against corrosion; lifetime ball bearings; and a tubing assembly pattern which is self-reinforcing and thus deadens vibration before it starts.

3. Extra-Quiet Operation—which is the direct result of deep-pitch fan blades driven at slow speeds.

4. Extra-Easy Multi-Circuiting—developed for Halstead & Mitchell remote Air-Cooled Condensers by engineers who know what simpler manifolding and selection of circuits can mean when several air conditioning and refrigeration machines must work off a single coil.

Even more important, you know these Air-Cooled Condensers bring you—with their Halstead & Mitchell nameplate—an assurance of the highest quality in the industry. Whether you are jobber, contractor, architect or manufacturer (and we'll be pleased to give quantity quotations), order Halstead & Mitchell "Co-ordinated Design" for *the better Air-Cooled Condenser.*

WRITE FOR BULLETIN AC-100

Halstead & Mitchell

BESSEMER BUILDING, PITTSBURGH 22, PA.

Manufacturer of THE INDUSTRY'S WIDEST SELECTION OF COOLING TOWERS
World's Largest Manufacturer of WATER-COOLED, CLEANABLE CONDENSERS

Freezer Sales--

(Concluded from Page 1)

by 16%, the report showed.

December sales, totaling 42,115 units, were the best since 1952. They were 8% ahead of 1954. Sales within the United States gained 9%, sales to Canada dropped 15%, while sales to other foreign countries rose 2%.

Last year continued the trend toward upright freezers that had been noticed in 1954. In 1955, 55% of the freezers sold were chests and 45% uprights. The previous year, 63% had been chests and 37% uprights. Despite the over-all increase in sales, chest model sales actually declined 6% from 1954, while upright sales increased 31%.

In many size ranges, uprights outsold chests during 1955.

December sales indicated that sales of uprights were almost matching sales of chests.

13 NEMA Firms' Distributors Freezer Sales by States In '55

SALES OF ELECTRIC FARM AND HOME FREEZERS—COMPLETE BY DISTRIBUTORS TO DEALERS BY STATES

SUMMARY FOR YEAR, 1955

Reports were received from 13 companies

States	Units
Alabama	12,849
Arizona	1,342
Arkansas	8,029
California	17,188
Colorado	5,638
Connecticut	4,996
Delaware	1,069
District of Columbia	6,137
Florida	12,400
Georgia	17,516
Idaho	2,483
Illinois	19,138
Indiana	15,578
Iowa	12,426
Kansas	6,701
Kentucky	8,622
Louisiana	13,761
Maine	2,008
Maryland	6,114
Massachusetts	3,592
Michigan	14,970
Minnesota	12,193
Mississippi	10,227
Missouri	16,409
Montana	3,151
Nebraska	7,888
Nevada	791
New Hampshire	683
New Jersey	7,418
New Mexico	2,523
New York	18,968
North Carolina	16,168
North Dakota	4,972
Ohio	27,256
Oklahoma	4,989
Oregon	6,870
Pennsylvania	27,848
Rhode Island	509
South Carolina	8,771
South Dakota	5,264
Tennessee	14,686
Texas	28,191
Utah	2,009
Vermont	567
Virginia	9,145
Washington	7,001
West Virginia	6,577
Wisconsin	10,292
Wyoming	1,086
Total United States	**455,009**

Participating companies: Admiral Corp.; Crosley & Bendix Home Appl. Div., Avco Mfg. Corp.; Frigidaire Div., General Motors Corp.; General Electric Co.; Gibson Refrigerator Co.; Hotpoint Co., Div. of General Electric Co.; Kelvinator Div., American Motors Corp.; Maytag Co., The; Norge Div., Borg-Warner Corp.; Philco Corp., Appliance Div.; Servel, Inc.; Victor Products Corp. (out 12-1-55); International Harvester Co. (out 10-1-55).

20-22 NEMA Firms Sold 724,454 Freezers In 1955

Electric Farm and Home Freezers—Complete—Sales by Sizes—Units

DECEMBER (Reports by 20 Companies)

Sizes	Domestic	Canadian	Foreign	Total
1. 6 cu. ft. (6.4 & under)				
Chest Models	*	*	*	*
Upright Models	†	†	†	†
2. 7 & 8 cu. ft. (6.5 to 8.4)				
Chest Models	*2,315	*16	*154	*2,485
Upright Models	†502	†....	†7	†509
3. 9 & 10 cu. ft. (8.5 to 10.4)				
Chest Models	1,239	22	85	1,346
Upright Models	‡	‡	‡	‡
4. 11 & 12 cu. ft. (10.5 to 12.4)				
Chest Models	5,597	20	497	6,114
Upright Models	‡5,150	‡39	‡94	‡5,333
5. 13 & 14 cu. ft. (12.5 to 14.4)				
Chest Models	2,627	109	34	2,770
Upright Models	5,287	43	156	5,486
6. 15 cu. ft. (14.5 to 15.4)				
Chest Models	4,085	116	99	4,300
Upright Models	§	§	§	§
7. 16 & 17 cu. ft. (15.5 to 17.4)				
Chest Models	2,261	3	30	2,294
Upright Models	§4,067	§33	§29	§4,129
8. 18 & 19 cu. ft. (17.5 to 19.4)				
Chest Models	2,328	56	16	2,400
Upright Models	2,024	11	20	2,055
9. 20 & 21 cu. ft. (19.5 to 21.4)				
Chest Models	1,907	96	67	2,070
Upright Models	¶	¶	¶	¶
10. 22 cu. ft. (21.5 & over)				
Chest Models	223	2	2	227
Upright Models	¶2,503	¶5	¶....	¶2,508
Total Chest Models	**22,583**	**440**	**984**	**24,006**
Total Upright Models	**19,533**	**181**	**306**	**20,020**
Total All Models	**42,115**	**621**	**1,290**	**44,026**

YEAR, 1955 (Reports by 20-22 Companies)

Sizes	Domestic	Canadian	Foreign	Total
1. 6 cu. ft. (6.4 & under)				
Chest Models	*	*	*	*
Upright Models	†	†	†	†
2. 7 & 8 cu. ft. (6.5 to 8.4)				
Chest Models	*35,424	*1,529	*2,526	*39,479
Upright Models	†5,086	†69	†135	†5,290
3. 9 & 10 cu. ft. (8.5 to 10.4)				
Chest Models	20,353	782	1,212	22,347
Upright Models	‡	‡	‡	‡
4. 11 & 12 cu. ft. (10.5 to 12.4)				
Chest Models	55,434	1,120	1,947	58,501
Upright Models	‡87,348	‡2,121	‡1,858	‡91,327
5. 13 & 14 cu. ft. (12.5 to 14.4)				
Chest Models	63,398	3,473	1,377	68,248
Upright Models	66,639	815	2,012	69,466
6. 15 cu. ft. (14.5 to 15.4)				
Chest Models	61,779	1,829	627	64,235
Upright Models	§	§	§	§
7. 16 & 17 cu. ft. (15.5 to 17.4)				
Chest Models	50,722	955	377	52,054
Upright Models	§77,830	§1,286	§471	§79,587
8. 18 & 19 cu. ft. (17.5 to 19.4)				
Chest Models	44,006	1,241	664	45,911
Upright Models	45,607	358	461	46,426
9. 20 & 21 cu. ft. (19.5 to 21.4)				
Chest Models	45,879	2,093	198	48,170
Upright Models	¶	¶	¶	¶
10. 22 cu. ft. (21.5 & over)				
Chest Models	6,243	53	38	6,334
Upright Models	¶26,896	¶22	¶161	¶27,079
Total Chest Models	**383,238**	**13,075**	**8,966**	**405,279**
Total Upright Models	**309,406**	**4,671**	**5,098**	**319,175**	
Total All Models	**692,644**	**17,746**	**14,064**	**724,454**

*Chest Models for items 1 & 2 combined because of possible disclosure of individual company data.

†Upright Models for items 1 & 2 combined because of possible disclosure of individual company data.

‡Chest Models for items 1 & 2 combined because of possible disclosure.

§Upright Models for items 6 & 7 combined because of possible disclosure.

¶Upright Models for items 9 & 10 combined because of possible disclosure.

Participating companies: Admiral Corp.; Ben-Hur Mfg. Co.; Carrier Corp.; Crosley & Bendix Home Appliances Div., Avco Mfg. Corp.; Frigidaire Div., General Motors Corp.; General Electric Co.; Gibson Refrigerator Co.; Hotpoint Co., Div. of General Electric Co.; Kelvinator Div., American Motors Corp.; Maytag Co., The; Norge Div., Borg-Warner Corp.; Philco Corp., Appliance Div.; Quicfrez, Inc.; Revco, Inc.; Servel, Inc.; Sub-Zero Freezer Co., Inc.; Victor Products Corp.; Westinghouse Electric Corp.; Whirlpool-Seeger Corp. (formerly Seeger Refrigerator Co.); Wilson Refrigeration, Inc.; Deepfreeze Appliance Div., Motor Products Corp. (out 12-1-55); International Harvester Co. (out 10-1-55).

GET 'EM CLEAN & KEEP 'EM CLEAN

Use Calgon's BIG 3 to lick cooling tower water troubles

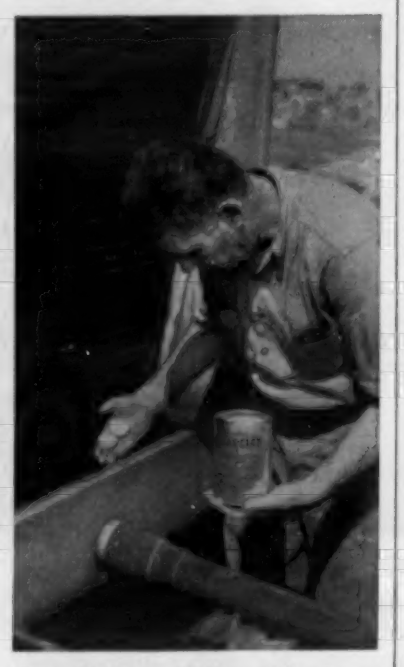
You don't have to put up with scale or other water troubles that commonly occur in cooling water systems. **Calgon's BIG 3 water treatment products** can get you out of trouble, and keep you out of trouble for good.

Use Calgon Scale Remover to GET the system clean!

Calgon Scale Remover is the safest material you can use to get a recirculating water system clean. It has a corrosion inhibitor to protect the system while in use. A built-in Ph color indicator guides proper application and tells you when you have used enough to get the system clean.

Use Micromet Plates to KEEP the system clean!

Micromet Plates provide continuous treatment to prevent further scale formation. A single charge will last up to six months, and the inexpensive feeding bag needs no costly plumbing installation. Recommended by many equipment manufacturers to inhibit scale formation and keep equipment efficiency high.



Use Calgon Algaecide to control slime growths!

Calgon Algaecide comes in pellet form, is easy to use, and is non-corrosive to equipment. Positive action stops bacteria and slime growths, keeps equipment clean.

calgon, inc.

A SUBSIDIARY OF HAGAN CORPORATION

HAGAN BUILDING, PITTSBURGH 30, PA.

REFRIGERATOR - FREEZER COMBINATIONS

MEET THE BUYER DEMAND

A BIG FREEZER VALUE

UNITED'S DUAL PURPOSE UPRIGHT

SAFELY SHARP FREEZES

SAFELY STORES OVER 1,000 lbs.

This big freezer value provides ideal backroom storage wherever food is served or frozen food sold. Meeting the most rigid commercial demands it means an extra measure of safety for food . . . extra savings in economy of operation.

Write for full information.

DRY BEVERAGE COOLERS · MILK DISPENSERS · UPRIGHT FREEZERS · BEER DISPENSERS

DESIGNED, ENGINEERED AND MANUFACTURED BY

United REFRIGERATOR COMPANY

HUDSON, WISCONSIN

WRITE, WIRE OR PHONE TODAY

For more information about products advertised on this page use Information Center, page 22.

the only room air conditioners with **TRUE**

"SOUND CONDITIONING!"

MUFFLER *at refrigerant inlet of evaporator stills rushing sound of flowing Freon found in ordinary room air conditioners.*

MOTOR *runs at an easy 1050 RPM, not at a straining 1500 RPM. Motor slows to 900 RPM at Night Cooling.*

QUIET BLOWER WHEEL . . . *not a noisy propeller fan— moves a huge volume of conditioned air.*

FIBERGLAS INSULATED OVERSIZE SCROLLS *soak up mechanical sounds and the rush of moving air.*

BLOWER PLENUM *has low internal air resistance, cuts sound of moving air by more than 29%.*

RUBBER CUSHION GASKETS *blot out sound in all parts that touch each other or touch the window or sill.*

WELDED HERMETIC MOTOR COMPRESSOR *is internally spring mounted; no pounding or rattling from forgotten shipping bolts.*

FELT-PADDED CONDENSER ORIFICE *deadens sloshing sound of water picked up by slinger ring for condensate disposal.*

EVERY MITCHELL *Room Air Conditioner is laboratory sound-tested before shipment.*

the Quiet

MITCHELL

For more information about products advertised on this page use Information Center, page 22.

IN '56
BUY ALL MODELS
MITCHELL *the QUIET*

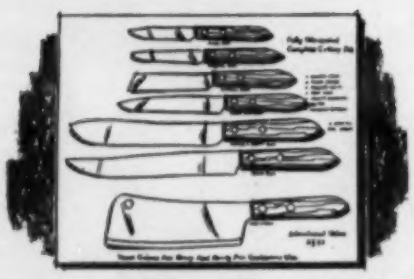
The Unbeaten Step-up Line...

Sell the world's finest room air conditioners
to every prospect, in his own price range.
Sell exclusive Mitchell features and quality!

with SHOUTING ADVERTISING

$1000.00-A-WEEK

Springtime New Dealer contest . . . Easiest sales-building plan ever conceived!



MEASURE-UP DIRECT MAIL CAMPAIGN

. . . and Premium Offer. Dealers draw traffic like a magnet with 7-piece knife set sales stimulator.

NATIONAL ADVERTISING

. . . packs the kick that makes Mitchell ads read and remembered; Mitchell Dealers harvest the sales!

MITCHELL MANUFACTURING COMPANY AC-4 *A DIVISION OF CORY CORPORATION*

For more information about products advertised on this page use Information Center, page 22.

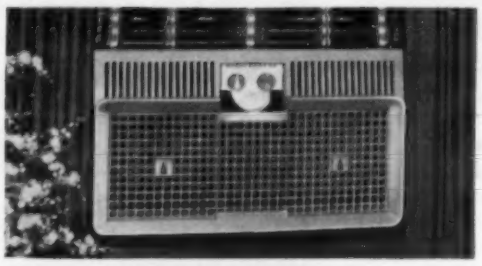
NEW!
CASEMENT WINDOW MODEL
FIRST FULL-CAPACITY CASEMENT WINDOW MODEL
In ¾ and 1 HP sizes for large capacity installations. One-dial control. QUIET!
¾ HP Model No. M-3456
1 HP Model No. M-3056

NEW!
PANCAKE UNIT
AMAZING MULTI-APPLICATION PANCAKE UNIT
Powerful! Just 15½ inches thin for in-the-wall, window, transom and many other installations. QUIET!
¾ HP Model No. M-3366
1 HP Model No. M-3066

NEW!
7½ AMP. MODEL
7½ AMP. MODEL
Just plug-in and switch to comfort. Famous Mitchell capacity and quality construction. One-dial control. QUIET!
¾ HP Model No. M-7546

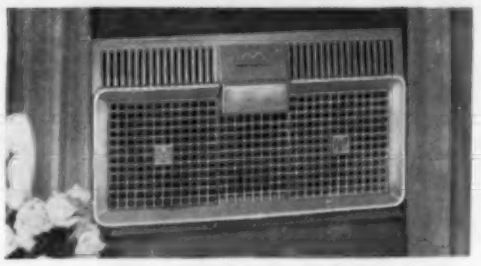
FROM ONE SOURCE!

room air conditioner...



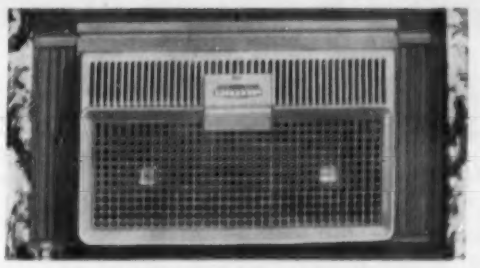
DELUXE LINE

High capacity cooling from compact chassis . . . Flush mount . . . Direction-aire . . . High power-factor-corrected . . . Cools, ventilates, circulates, filters . . . Permanently lubricated motor . . . Double cooling and filtering . . . ½, ¾, 1, 1½ HP models.



CUSTOM LINE

Reverse cycle or resistance heating . . . Single knob control . . . High capacity cooling from compact chassis . . . 7 levels of comfort . . . Flush mount . . . High power-factor-corrected . . . Automatic thermostat std. equipt. 13% cooling bonus at no extra cost—two-speed motors . . . ¾ 1 HP models.



IMPERIAL LINE

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For more information about products advertised on this page use Information Center, page 22.

Overload Relay Selection Essential for Full Capacity Use of Hermetic Motors

ST. LOUIS—"Increased use of hermetic motors in the field of air conditioning has logically increased the direction of attention toward better and more reliable overload protection," believes R. E. Macherey of Industrial Controller Div., Square D Co.

"Due to the highly competitive nature of this industry, the economics of the situation dictate that the motors which are used must be used to maximum capacity. Protection therefore becomes paramount, and the selection of overload relays becomes critical," Macherey declared at the recent AIEE conference on application of motors to space heating and cooling equipment.

The conference was held at the Chase hotel here under the sponsorship of the Committee on Rotating Machinery and the St. Louis section of the American Institute of Electrical Engineers.

Pointing out first the differences between hermetic and general purpose motors, Macherey explained that the latter "are designed to operate at 115% load in a 40° C. ambient without exceeding the hottest spot temperature requirement of 105° C. for Class A insulation. This extra 15% capacity is often referred to as a 'service factor.'

Standard Overload Relays Listed In Mfrs. Table

"Standard overload relays designed for use with general purpose motors are listed in a table published by the control manufacturer which shows a range of full load currents for each heater. The trip current for each heater in the table is then taken at 115% of the minimum full load current listed for that heater.

"Selection of a heater from a table of this sort assures that the maximum loading of the motor that the heater will permit is limited to 115%," Macherey said.

"In the case of hermetic motors, the temperature rise of the motor depends on the design of the cooling system as well as the motor losses. Thus the motor-compressor manufacturer can apply practically any load within the safe operating temperature of 105° C. dependent only on the design of the cooling system and the conditions of operation of the hermetically sealed unit.

"Because of this higher loading factor, which may be as much as 150%, the hermetic motor will draw a higher full load current than an equivalent general purpose motor. However, the locked rotor current is in no way affected by hermetically sealing the motor and, therefore, it will be operating much closer to the locked rotor current than is the case with the general purpose motor.

"Whereas the ratio of locked rotor to full load current for general purpose motors might be 6 to 1, the same ratio for hermetic motors might be 4 to 1. Under locked rotor conditions, the major portion of the heat generated stays within the windings due to the rapid heat rise, even in the case of the hermetic motor. Therefore, under stalled conditions, the time that either motor can stay on the line without burning out is the same.

"Because of the inverse time-current characteristics of overload relays, it then follows that a faster operating relay must be used on the hermetic motor than is used for standard general purpose motors," Macherey explained.

"Since the motor-compressor manufacturer has control of the temperature rise of the hermetic motor, overload relays are selected without a service factor in order to use the motor to full advantage. Thus, a table of 'quick-trip' relays for use on hermetic motors normally lists the minimum current required to trip the relay and the motor-compressor manufacturer selects one which is just large enough to permit the motor to operate under extreme conditions without tripping," he said.

Several Factors Affect Proper Operation

"Factors which affect the current which the motor can safely draw without overheating include evaporator design, condenser water temperature and pressure, conditions of line voltage unbalance, and frequency of starts. The air conditioning or refrigeration manufacturer must determine from tests under these extreme operating conditions the maximum safe operating current the motor can draw before he attempts to select a suitable overload relay.

"An occasional irritating factor involved in the use of thermal overload relays is 'nuisance tripping' or tripping at a lower current value than expected. This generally results from an improper selection of the heater based upon inadequate information concerning ambient temperature, the size of the enclosure in which the relay will be mounted, and conditions of unbalanced line voltages," he explained.

"Thermal overload relays are so designed in order to be very nearly affected, and in much the same manner, by the same factors which affect motor heating, ambient temperature, and motor current. They are calibrated in an ambient temperature of 40° C. (104° F.). However, most often the relays are used where the ambient varies considerably from 40° C. Higher ambients cause tripping at lower currents and lower ambients cause tripping at higher currents.

Mfrs. Table Shows Multiplying Factor

"The manufacturer has a table or curve which shows a multiplying factor to be applied to the tabulated values of tripping currents for relays of his manufacture when used in unusual ambients.

"Thermal overload relays are often sold and used as part of a complete motor starter in a box designed for the starter. In this case a selection will be based upon the table supplied with the starter as well as the conditions under which the device will be used as mentioned above," said Macherey.

"More often the relays form part of a starter which is sold without an enclosure and which is installed in an air conditioning or refrigeration unit in a space the size of which will vary from unit to unit. If the same heater is selected as was used on the self-enclosed starter, it may take more current to trip the relay.

"On the other hand, if the enclosure in which the open starter is mounted is relatively small and the starter is mounted

(Concluded on next page)

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IMPERIAL TUBING TOOLS
The standard of the trade for over 30 years

IMPERIAL—the pioneer and leader in tubing tools—now offers many outstanding, labor-saving developments typified by the tools illustrated here.

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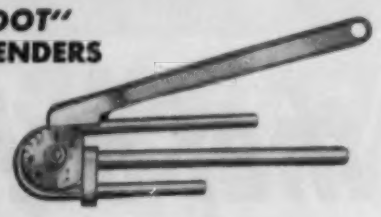
No. 274-FW 2-in-1 Tube Cutter, same as **No. 274-F,** but has Spare Cutting Wheel always on hand for emergencies—carried in recess in body under reamer (see illustration).

"BLUE DOT" TUBE BENDERS



Bend hard or soft tubing—any angle up to 180°. **No. 364-FH** individual benders for each size of tubing. Also gear and spring type benders and benders for combinations of sizes. Size range 1/8" to 1 1/8" O.D.

Have You Seen These IMPERIAL TUBING TOOLS

No. 374-F COMBINATION TUBE CUTTER AND TUBE CONSTRICTOR

Roller is secured in recess under reamer when not in use.
Joint is ready for sweating when constricted tube contacts smaller tube.
NEW
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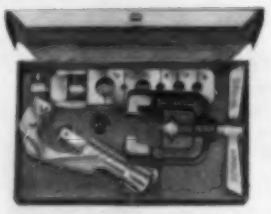
Constrictor roller replaces cutting wheel of this (No. 274-F) tube cutter to convert it into a tube constrictor. (Roller is carried in recess under reamer in body to tool.) Sweating a larger tube to a smaller tube is greatly facilitated by this tool. Views above show how.

ROL-AIR FLARING TOOL AND HI-DUTY TUBE CUTTER KIT

Did you know that you can now have the famous Rol-Air Flaring Tool along with the popular Hi-Duty Tube Cutter, both described above, in a sturdy steel kit? Also carries spare cutting wheel. Ask for **No. 124-F.**



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For more information about products advertised on this page use Information Center, page 22.

Overload Relays--

(Concluded from preceding page)

in the vicinity of other equipment which is radiating a considerable amount of heat, less current will be required for tripping the relay.

"The affect of enclosure size on the operation of thermal overload relays is, therefore, akin to the affect of ambient temperature. Where variable enclosure size presents a problem concerning thermal relay selection, the control manufacturer should be consulted for his recommendations," he suggested.

"In the case of magnetic type overload relays, the relay is not affected by ambient temperature and no adjustment in size must be made for variations in ambient or enclosure size.

Inherent Protection Devices Are Special

"Inherent overload protection devices are a particular species of the thermal overload relay family and require close cooperation between control manufacturer and motor-compressor manufacturer for selection.

"Whether thermal or magnetic type overload relays are used, selection of the proper size will be affected by consideration of unbalanced line voltages if this condition exists.

"When unbalanced line voltages are applied to a polyphase motor, unbalanced currents are caused to flow in the stator windings, the magnitude of which depend on the magnitude of the unbalance. The line currents at normal operating speed with unbalanced voltages will be greatly unbalanced in the order of six to 10 times the voltage unbalance.

"This introduces a complex problem in the selection of the proper overload relay inasmuch as the selection for one set of unbalanced conditions may be wholly inadequate for a different set of conditions," Macherey explained.

In order to protect the air conditioning and refrigeration equipment manufacturer from the affects of abuse of installed equipment, trip-free operation of overload relays is required. Trip-free operation results when the control circuit of the overload relay cannot be maintained in a closed position once the relay has been tripped by overcurrent regardless of the positioning of the reset button until either the overload is removed or the relay cools permitting it to be reset.

"This feature has been designed into relays for use on hermetic motors in order to prevent a deliberate attempt to run the motor under overload conditions by taping or blocking the reset button," he pointed out.

Most Overload Relays Are Manual Reset Type

"Most of the overload relays now in use are of the manual reset type but some are available with automatic reset. Since air conditioning and refrigeration equipment utilizes two-wire control in conjunction with automatic pilot devices such as high and low pressure cutouts and thermostats, the use of automatic reset should be avoided in order to prevent recycling under overload conditions with consequent burnout of the motor.

"In the few cases where automatic reset is used an auxiliary relay is required which holds the control circuit open after an overload until the thermostat is turned to the off position. The householder doesn't have to go to the basement to reset it.

"In a particular circuit of this type a normally closed contact on the relay is wired in series with the overload relay, the pressure cutout, and thermostat contacts and the coil of the line contactor. The coil of this relay is then connected across the series connection of its own contacts and those of the overload relay and the pressure cutouts, thereby preventing its pickup during normal operation.

"When an overload condition develops, the contacts on either the overload relay or the pressure cutouts open de-energizing the line contactor and permitting the auxiliary relay to pick up through the coil of the line contactor.

"The coil of the auxiliary relay must be matched with that of the line contactor so that with the two coils connected in series across the line, the voltage drop across the line contactor coil is below its dropout voltage while the voltage drop across the auxiliary relay is sufficient to pick it up.

"When this occurs, the normally closed contact on the relay opens and it stays in this condition until the thermostat is turned off to open the entire control circuit. Turning the thermostat on again sets up the circuit for normal operation until another disturbance occurs.

"Overload relays are not designed to protect the starter and associated wiring from short circuits within the motor circuit. It must protect the motor from currents of locked rotor magnitude or slightly more in the instance of a high torque start where the starting current might exceed locked rotor value.

"Short circuit currents are of much greater magnitude than locked rotor current and circuit breakers or fuses must be installed ahead of the starter with a setting or rating in accordance with the N.E. code for branch circuit protection.

"However, because of the high current densities at which 'quick-trip' relays operate, not all the heaters available will be protected by the maximum fusing permitted and hence the control manufacturer lists the maximum fuse size which will protect the heater under short circuit conditions.

"This fuse size is determined from the 5,000 ampere short circuit test as specified in the Underwriters' Laboratories standards and should not be exceeded under any conditions else heater element burnout can occur," he cautioned.

"Considering the various types of overload relays currently available, the choice of a particular type depends on individual requirements. Interchangeable heater elements are available on the solder pot and indirectly heated bimetallic types enabling the stocking of only one type of relay unit and a variety of heater elements which requires the minimum of shelf space.

"Because the indirectly heated bimetallic relay requires changing the complete relay units, its use helps to discourage the common practice of using larger heaters to run a motor when conditions causing relay tripping have not been fully investigated and reconciled. Use of the inherent type of protector may depend on the space available within the unit.

"Use of the magnetic type of overload relay depends on the special circuit requirements stated for automatic reset.

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'Short, Short' Course In Air Conditioning Fundamentals-3

Describes Grilles, Outlets, Dampers And Tools for Checking Distribution

D. C. Schaffer, training supervisor for the service department at Frigidaire Div., General Motors Corp., presented an excellent outline of the basic fundamentals of comfort air conditioning at the national convention of the Refrigeration Service Engineers Society last November. He explained for the benefit of servicemen and others who are not engineers just what air conditioning is all about and how it works.

A condensed version of his outline is being presented serially by the NEWS. In earlier instalments Schaffer told about the nature of air and moisture, explained the psychrometric chart and how to use it, described air movement and the various types of fans, and outlined air flow factors in designing duct systems.

Many complaints of improper air distribution and circulation can be traced to improperly selected grilles, Schaffer declared.

The first and most generally used wall grille was the unidirectional grille, which throws the air straight ahead in a single stream. With the growth of air conditioning and the increase in air distribution problems, new types were developed.

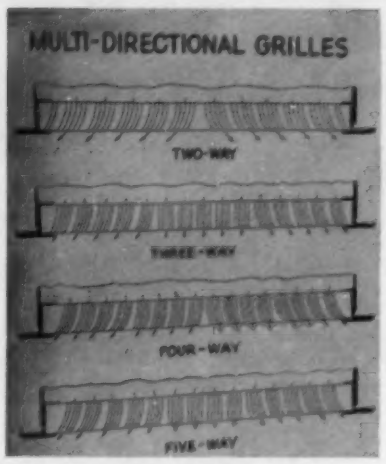
"Some of the first were modifications of the unidirectional type," he said, "with some of the air thrown up, some down, and the remainder straight ahead. This resulted in very little spread. However, where it was necessary to throw air a considerable distance with a higher velocity they were acceptable.

"To obtain a short distance throw and wide spread, the multidirectional air distribution grilles were developed. These have two, three, four, and five-way throw.

"There are modifications of these, such as two way grilles that will throw half the air to the right or left and the other half straight ahead.

"The three, four, and five way grilles provide increasingly greater spread. The air stream varies from straight ahead to various degrees of deflection.

"Distribution employing ceiling outlets has become very popular. With ceiling outlets, the cooled air can be introduced at high velocity and caused to gradually settle over the occupied zone.



SOME OF THE multi-directional grilles developed to solve problems in air distribution introduced by air conditioning

"One type of ceiling outlet has a series of circular diverging metal cones opening outward from a control neck to which the duct is attached.

"Practically draftless air distribution can be obtained at a wide range of outlet velocities. Also, higher diffusion temperature differences are used than with other type outlets.

"Return air grilles are selected to provide considerably lower velocities than employed through supply grilles. The principal reasons are to eliminate any feeling of drafts, to reduce noise to a minimum and to hold to a reasonable figure the resistance to air flow.

"In general, the permissible face velocity of a return grille is dependent upon the distance between the grille and the occupants sitting in the room.

"When the occupants are less than 5 to 6 ft. from a grille the face velocity should be 350-400 f.p.m. Higher velocities of 500 to 600 are permissible for greater distances. In any instance, the return air velocity should not exceed 50 f.p.m. in the conditioned area.

"For cooling installations, the return opening should be located with due consideration given to appearance, accessibility, building construction, uniform space velocity, cost of installation and ductwork, and proximity to occupants.

"In most installations it is desirable to locate the opening in the wall near the floor as the air can be directed in practically a complete circuit and thus provide more uniform velocity in the occupied zone.

Keep Air Return Behind Occupants

"Air return should be to the rear of the occupants. This is a most important factor from the standpoint of comfort. The air should enter the room above the heads of the occupants, fall gently over their heads and travel to the rear of the room passing over their faces instead of their backs. Air currents on the back of the neck cause chills while the same air currents toward the face are pleasant.

"So far in our discussion of air circulation and distribution we have brought out the importance of having the proper air pressure, velocity, and volume through the ducts and in the occupied area.

"In most duct systems, especially those which have branch ducts, it is impossible to design a system which will not receive some type of volume control within the supply and return ducts.

"Four duct damper applications used are the butterfly, flap, squeeze, and splitter type. The butterfly damper is the most popular and the flap type next in line. These are used when the side of the duct is exposed.

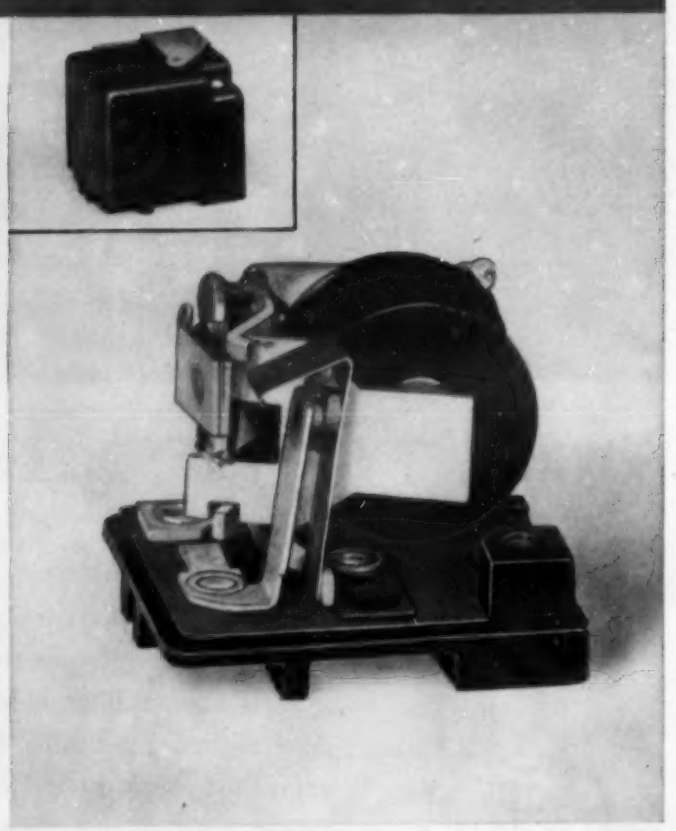
"When the sides are not exposed, the squeeze type is employed. The splitter type is always used when the volume of air to a branch duct requires reduction or it is desirous to cut

(Continued on next page)

GENERAL ELECTRIC **NEWS**

featuring G-E appliance controls for refrigeration systems

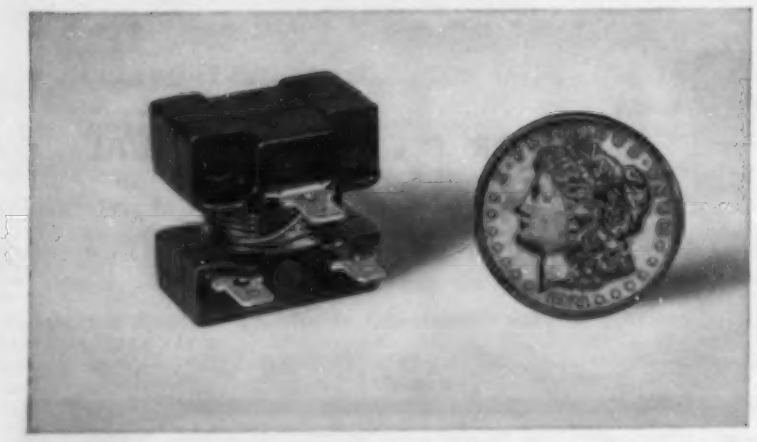
General Electric Starting Relay Eliminates Voltage Adjustments



General Electric's Type ARR-3 relay, pictured at the right, is a sturdy, inexpensive snap action device that's used most commonly in the starting of single-phased hermetically sealed refrigerator compressor motors. The dependable G-E relay is factory-adjusted to pick up at a predetermined voltage according to each customer's specific application. Additional features include corrosion-resistant parts, two spare terminals and the attractive molded cover which provides maximum protection against moisture and dust.

FOR FURTHER INFORMATION on this economical standard size G-E starting relay, contact your nearest Apparatus Sales Office, or write for GEC-1246, Section 740-86, General Electric Company, Schenectady 5, N. Y.

NEW Silver-dollar-sized Relay Gives One Million Starts



General Electric's new small-sized starting relay is designed for more than 1,000,000 operations. Designated Type ARR-2, the new G-E relay gives you high horsepower and current rating ranges (at 115 volts will make and break 15 amperes) and it can be installed from any direction, eliminating the need for any special mounting brackets. The new relay is particularly applicable where adverse atmospheric conditions exist or where you want remote control. Contact your nearest G-E Apparatus Sales Office for further free detailed information.

GENERAL ELECTRIC

For more information about products advertised on this page use Information Center, page 22.

Trouble-Shooting Air--

(Continued from preceding page)

off the flow through the branch completely.

"Some outlet grilles are equipped with dampers whereby the volume of air from each outlet can be controlled. These are used usually when two or more outlets are provided in the same room and more volume is required from one than another due to conditions within the occupied area.

"As servicemen we can do very little in remedying complaints that involve air circulation and distribution without first knowing what volumes, face velocities, outlet air temperature, etc., the sales engineer originally specified.

"This means that there must be a high degree of cooperation between the sales and service departments. The sales department must make available to you complete data on each installation. After the necessary information has been obtained you can make the diagnosis using certain instruments that are designed for that purpose.

"An anemometer is used for measuring the velocity of air through inlet or outlet grilles, filters, cooling units, dampers, etc. It is also an indirect means of obtaining the volume of air being handled, since there is a definite relationship between velocity and volume.

"Let us assume that we want to check the volume of air through a grille whose gross area is 5 x 35 in. First, we hold the anemometer approximately 1 in. from the grille with the dial facing the room.

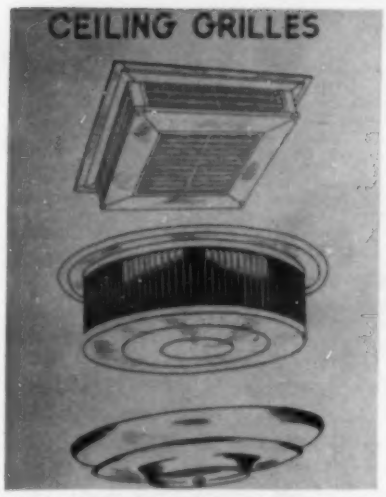
"Release the brake and move the anemometer slowly in front of the entire face of the grille for exactly one minute. Then put on the brake. The reading will indicate the velocity in feet per minute. Let us assume that the velocity is 400 f.p.m. Next we change the area to square feet which is 5 × 35 = 175 sq. in. divided by 144 or 1.21 sq. ft. Now we multiply 400 by 1.21 and we find the volume is 484 cu. ft. per minute.

"To check the air leaving an exhaust grille proceed in the same manner except have the anemometer dial toward the face of the grille. On large faced grilles, imaginary sections should be marked off and an average reading should be obtained after the velocity through each area has been taken.

"Another instrument in common use is a Velometer. This instrument is direct reading and time is no factor. When held in front of a grille and the brake is released, the dial moves to indicate the velocity in f.p.m.

"As in the case of the anemometer, the velometer must be moved from one place to another over the face of the grille in order to obtain an average reading. The volume is then obtained in the same manner as with the anemometer.

"Ventilation involves the introduction of outside air into the conditioned area in such quantities and quality that health and comfort are assured. The chief factors are temperature, humidity, purity, and cleanliness.



THREE TYPES OF ceiling grilles used in air conditioning work. Bottom grille offers practically draftless air distribution in wide range of outlet velocities.

"Air for ventilation rarely has the proper temperature and moisture content and always contains dust, polien, and bacteria and often soot, carbon particles, and other foreign materials. Therefore, incoming air must be either heated or cooled, humidified or dehumidified, and filtered or washed, or both.

"A term frequently heard in air conditioning is 'vitiation.' Air is considered vitiated or contaminated when its chemical compound is changed, when the air contains objectional odors, or when the temperature and humidity have increased above the desired condition.

"A change in chemical composition is produced through the breathing process of occupants which creates an over amount of carbon dioxide in the room. Offensive odors are produced from clothing, skin, nose, mouth, or special processes within the space.

"The temperature of the air within the space is increased by body heat and other heat producing devices while the humidity is increased by moisture from the lungs, skin, or other moisture producing devices.

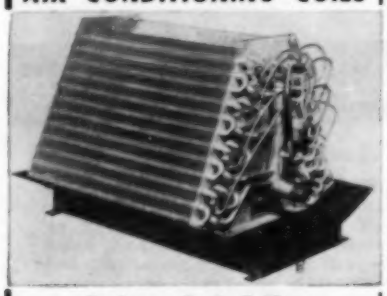
FOUR STYLES OF duct dampers described by Schaffer.

"Many attempts have been made to treat or process vitiated air from the standpoint of odors and bacteria. These include the use of aromatic oils, charcoal filters, and ozone.

"However, none of these methods has proved entirely satisfactory.

(To Be Continued)

New KRACK
FURNACE BONNET
AIR CONDITIONING COILS



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There is economy in both the low initial cost and minimum maintenance required. There is also economy of space with the compactly designed DYNA-PAC. Duct models can be attached to existing warm air heating systems to provide year 'round conditioning.

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UNARCO PACKAGED AIR CONDITIONERS

HAVE YOU ENROLLED IN UNARCO'S DEALER PLU$ PLAN? WRITE NOW FOR FULL DETAILS OF BIG DEALER AWARD PROGRAM.

For more information about products advertised on this page use Information Center, page 22.

They'll Do It Every Time

by Jimmy Hatlo

HERE'S ANOTHER LETTER FOR YOU--THAT MAKES TWO THIS WEEK SO FAR, P.S.
HAS BIG STUFF HAD ANY NEW RUBBER STAMPS MADE LATELY? HE'D BE HAPPIER OUT WEST BRANDING CATTLE---
I LIKE THOSE MEMOS--"FROM THE DESK OF J. PIPPINGTON SQUEAK." WHERE WOULD THEY BE FROM--THE WATER COOLER?
HE MARKS 'EM UP WITH SO MANY RUBBER TATTOOS YOU CAN'T READ THE LETTER--
HEH-HEH--HE'S GOT EVERYTHING BUT BIGDOME'S STAMP OF APPROVAL--
THERE'S ONE IN EVERY OFFICE---THE GUY WHO THINKS THIS MAKES HIM A BIG EXECUTIVE---
THANX AND A TIP OF THE HATLO HAT TO "THE FILERS", OKLAHOMA CITY, OKLA.
JIMMY HATLO
12-28
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Something For Everyone In This Trend: Let's Get With It

(Concluded from Page 1)

eventually, more service calls will be needed on these consumer products. So, parts jobbers will benefit; likewise service firms.

Basic idea of these complete new kitchen deals is to trade up a refrigerator or freezer purchase to several related "wife-saver" appliances in a continuing time payment contract. And there's profit in that concept for everyone concerned.

Personally attuned complete kitchens have great appeal for many housewives, particularly those whose happy families entertain a lot. Also they intrigue women who desire more freedom from household monotony, and those who have a flair for original home decoration.

The colorful "decorator kitchen" idea can be applied not only to new homes, but to old houses inhabited by restless wives—who formerly were hell-bent on shifting furniture around every so often (to their settled-down husband's discomfit).

Number of family units which are ready to buy entire home modernization programs, instead of one new labor-saving home machine at a time, is growing steadily. Coupled with today's lineup of glamorous new appliances, that circumstance indicates our related and complemented refrigeration industry's opportunities can be tremendously enhanced by helping the complete-kitchen promoters sell their sparkling idea.

There's a big nut to crack before mass sales of related home appliances will become a reality, though. That is: how to achieve nationwide distribution soon enough to take advantage of consumer readiness.

Is the so-called package kitchen too big a project for the average retailer? Most of his brethren now are fully occupied with the job of selling refrigerators, freezers, room air conditioners, etc., in sufficient volume to earn a modest competence. Only the biggest and best dealers can handle this important job. And that's why most "decorator kitchens" currently are being installed by (and sold directly to) speculative builders of new homes and apartments.

Nevertheless most major manufacturers realize they do need to penetrate the much bigger market of "old home" occupants. So, they cultivate the nation's top dealers. Here's how some firms already in the field are trying to solve this retail distribution problem: General Electric and Hotpoint are helping their best dealers train special personnel for this task. Frigidaire has announced two new departments: (1) a building industry sales unit, which will handle residential heating and cooling equipment and its new "holiday" kitchen; and (2) a kitchen modernization department.

Westinghouse has set up a contract sales department which helps distributor salesmen sell package kitchens to builders. Richard J. Sargent, manager of Mansfield's major appliance division, holds that retailers should handle only one FULL LINE if they hope to make a success of selling this type of merchandise. Declares Sargent: "We believe that our field again has become a specialty selling business. We believe that a retail sales organization is most effective when it is living, breathing, and selling hard on a single line of merchandise."

The American Kitchens Div. of Avco Mfg. Corp. is offering a modified package kitchen to specialty dealers. Any able dealer can handle complete-kitchen sales successfully, Avco contends, if the distributor has adequate warehouse facilities to insure fast delivery of equipment to dealers when required, and if the distributor has a central servicing arrangement to relieve the dealer of this problem.

The Personal Kitchen idea can boost sales of all refrigeration products—IF said imaginative "add-on" home equipment is demonstrated locally and dramatically by those relatively few dealers whose long list of satisfied customers qualify them to do the job.

Men do not build castles, or churches, or diesel trains, or even make soap for themselves. They do it for, or because of women. As a result of all this, women were never so important as they are at the present moment.—MRS. HIRAM HOUGHTON, *General Foundation of Women's Clubs.*

* * *

Old age, paradoxical as it may seem, has more time. When I was young I was amazed at Plutarch's statement that the elder Cato began at the age of 80 to learn Greek. I am amazed no longer. Old age is ready to undertake tasks that youth shirked because they would take too long.—SOMERSET MAUGHAM.

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AIR CONDITIONING & REFRIGERATION NEWS

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F. M. COCKRELL, *Founder*

'The Conscience of the Industry'

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"I have always felt that whatever the Divine Providence permitted to occur I was not too proud to report. The people are not served by pussyfooting, or by that sort of journalism in which nobody will ask who is the editor of a paper or the writer of an article, and nobody will care."—*Charles A. Dana.*

OFF THE CHEST

National-U. S. Radiator Corp.
Johnstown, Pa.

Editor:

That was a very thought-provoking editorial which appeared in the Jan. 23, 1956 issue of AIR CONDITIONING & REFRIGERATION NEWS. Many of Mr. Taubeneck's editorials are of excellent quality and are very much to the point, but this one in particular is quite timely in that it emphasizes the importance to this industry of physiological research.

Many of us who have been trying to promote research for some time have been disappointed with industry's failure to realize that it is only through physiological research that we can develop accurate technical and scientific data to prove and promote the value of proper air conditioning and its effect upon health, comfort, and productivity of individuals. Maybe this type of research should be expressed by a less technical word than physiological.

The fact remains that today we do not have enough technical information available to prove on a scientific basis that proper air conditioning is an economic necessity. The appeal to the public to buy air conditioning is being made more on the basis of fancy than on fact. The approach is more psychological than logical.

Case histories may be alright for strengthening the psychological appeal, but unless those case histories have been recorded on a scientific basis, they are of questionable value as engineering material for future use. I am thinking of the kind of material that we would want to include in our Guide.

Mr. Taubeneck's article is encouraging and stimulating, and gives a ray of hope that possibly there are some in industry who appreciate the kind of sales propaganda that this industry must have if it is to take full advantage of its opportunities.

NAT HUNTER,
Senior Vice President for
Engineering & Research

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Keep up-to-date on what's going on in your industry. You'll see action weekly in AIR CONDITIONING & REFRIGERATION NEWS. Covers latest news and gives you top how-to-do-it reports on commercial and residential air conditioning, commercial and home refrigeration: manufacturing, contracting, distributing, retailing, and servicing. Read the Industry's newspaper for profit every week. Only $6.00 per year, 52 issues.

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In Residential, Commercial Fields

Gibson Offers Distributors 'Packaged' Direct Mail Plan To Get Cooling Dealers

GREENVILLE, Mich.—To get dealers quickly for its newly appointed distributors of commercial and residential air conditioning equipment, the Gibson Refrigerator Co. here is offering its distributors a "packaged" direct mail program that has proved highly successful.

The packaged direct mail program is set up in a nationwide basis. It is intended to provide the distributors with a "professional" advertising campaign requiring little effort on their part.

The program was designed and developed by Dalton P. Fox of Detroit, a direct mail specialist who has twice won a "Best of Industry" award from the Direct Mail Advertising Association for his work in the air conditioning industry. Fox also is carrying out the program.

The packaged program consists of three mailings. Each mailing contains a sales letter, a piece of literature, and a reply post card. The second and third mailings follow the first at 10-day intervals.

When Gibson receives the distributor's dealer list; name, address, and telephone number for imprint; signature of the distributor; and business reply card permit number, the company goes to work. If the distributor does not have a mailing list already, one will be compiled for him.

The first letter reminds the dealer of the scope of the air conditioning market. It tells briefly what Gibson has to offer. It tells him he does not have to be an engineer to sell air conditioning. It informs him that service will be no problem. It asks that he inquire for further information.

Accompanying this letter is a folder describing Gibson's line.

The second letter advises the dealer he is losing money—in the way of added profits—by not selling residential air conditioning. It tells him what Gibson has to offer for the home market and invites his inquiry.

This letter is accompanied by a piece of colorful literature on the Gibson residential line.

Third and final letter reminds the dealer of the previous two letters. Then it launches into a brief account of the company behind the products—reasons why the manufacturer rates consideration in the dealer's choice of commercial and residential air conditioning equipment. It ends with another request that the dealer write for further information.

The attached literature pictures Gibson's manufacturing facilities and lists many of the industry "firsts" for which Gibson claims credit.

First launched last January and planned to continue during the first half of the year, the program has been well received by distributors and has produced a high rate of return, according to Earl Palmer, Gibson's commercial and residential air conditioning sales manager.

In urging distributors to participate in the program, Gibson pointed out that "direct mail can double your sales effort without increasing the size of your sales force."

Room Air Conditioner Promotion Opens May 13

CHICAGO—*The Chicago Tribune* has announced that it plans to sponsor a room air conditioner promotion, starting Sunday, May 13.

The *Tribune* said that consumer and industry reaction to its successful 1955 air conditioner promotion encouraged sponsorship of a similar campaign again in 1956.

"Last year's promotion brought an early boost to the air conditioner business in Chicago," it was stated. "Increased store traffic, earlier buying decisions, and extra sales were clocked during the campaign, which ran April 25 to May 23."

Detailed plans for Chicago's 1956 air conditioner event are now being evolved in cooperation with members of the air conditioning industry.

'Cast for Cash' Pays Off In Promotion; Could Be Adapted

BUFFALO—Customers of a local automobile dealer "cast for cash" in a whale of a promotion which could be adapted for use by other specialty dealers.

The car dealer constructed a large "whale" and covered it with "scales." Each scale was marked from $5 to $500.

Purchase of a car made the customer eligible to cast for cash, with two practice casts being allowed. He got cash.

According to the dealer, this had more appeal than a straight reduction. Customers preferred trying for $500 to settling for $100.

Appliance dealers using this stunt could mark scales from $1 to $25 and let those who bought a major appliance try their luck.

BOTHERED WITH SCALE?

WE RECOMMEND

WC-2100 GYP-SOL

[FOR THE REMOVAL OF CALCIUM SULFATE (gyp-scale)]

AND

WC-210 SCALE-OUT

[FOR THE REMOVAL OF LIME SCALE]

Both Products GUARANTEED & INSURED!

For further information, contact your local wholesale air conditioning and refrigeration supply house or . . .

WORTH CHEMICAL PRODUCTS CO.

406 E. MAGNOLIA P.O. BOX 366

FT. WORTH, TEXAS

"Our 10th Year"

(Dealerships open in some areas)

Super-accurate

Velvet-smooth

A-P liquid charge in capillary bulb assures positive control at all temperatures, all positions.

Install the bulb in any position, do the same with the valve. Don't worry! Control will always be positive, super-accurate, velvet-smooth!

Remarkable ease of control is the main reason why A-P Models 207C and 209, with exclusive liquid charge, are widely preferred for low-temperature, commercial or air-conditioning applications. There are other good reasons, too: minimum internal moving parts reduce operating friction . . . forged brass body is positively leakproof . . . superheat adjustment covers entire normal operating range . . . plastic seal caps keep dirt and moisture out of valve for the ultimate in trouble-free installations.

Order from your jobber, or write for bulletins.

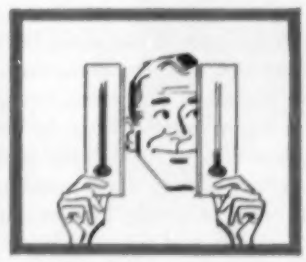
Model 207C — ½, 1 and 1½-ton ranges F12; 1 and 2-tons F22 and Methyl Chloride

- Adjustable superheat — 0° to 18°F.
- One valve for use on —40° to +40°F. applications.
- Internal or external equalizer types.
- Extremely compact — for "hard-to-get-at" installations.

Model 209 — ½, 1 and 1½-ton ranges F12; 1, 2 and 3-tons F22 and Methyl Chloride

- Adjustable pressure limit — 0 to 55 lbs. Clearly marked adjusting knob.
- Adjustable superheat — 0° to 20°F.
- Complete series of "Equa-Flo" flare-type distributors available.

Soon to the service engineer — install valves upside down, sideways or at any angle.



Bulb remains super-sensitive—regardless of temperature surrounding valve. Perfect control, always.

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For more information about products advertised on this page use Information Center, page 22.

Product Design Engineer

Are you wasting imagination and energetic ability . . . join our Product Engineering Department and work with the men that designed and developed the famous VORNADO Window, Central Air Conditioning systems, and Air Circulators. Do you have a BSME or BSEE degree with at least 3 years in design and development or equivalent background and experience . . . then you are our man.

Due to our tremendous expansion program these new, permanent positions offer outstanding opportunities for advancement. Salary commensurate with background and experience.

Please send detailed resume to Mr. Philip Chappell, Employment Manager,

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Manufacturers of VORNADO PRODUCTS—
Specialists in comfort cooling appliances

1812 W. 2ND. STREET • WICHITA, KANSAS

Tranter Truck, Trailer Refrigeration System Described to 110 Weather-Defying Servicemen at Mich. RSES Factory Clinic

LANSING, Mich. — Approximately 110 servicemen from all parts of Michigan braved icy roads and threats of snow to attend the second factory service clinic sponsored recently by the Michigan Association of the Refrigeration Service Engineers Society.

The clinic was staged in the factory of Tranter Mfg. Inc., manufacturer of Kold-Hold truck plates and truck refrigeration equipment. It was jointly sponsored by that firm.

Not only was the large attendance under such weather conditions surprising, but so was the fact that more than half of those attending were not members of the RSES, reported Don Renwick, president of the Michigan Association. Names of non-members were distributed to local chapters for follow-up.

The servicemen attending toured the Tranter factory to watch manufacturing operations, had a buffet lunch in the company cafeteria, and then broke up in three groups to get more information on Tranter products.

Joe Fitzgerald, Kold-Hold sales manager, described the company's new "Mark Refrigeration System" for trucks and a new trailer refrigeration system operating off a live trailer axle.

Wayne Loree, Platecoil sales supervisor, described Tranter's platecoils for heat transfer applications, and Dan Pillow, Kold-Hold service manager, talked on selection, use, and service of Kold-Hold plates.

Condensing Unit Weighs 290 Lbs.

Fitzgerald explained that its light weight was one of the outstanding characteristics of the new Mark truck refrigeration system. The blower coil section, he said, weighs only 60 lbs., the drive assembly from 64 to 65 lbs., and the condensing unit section from 280 to 290 lbs.

He said that systems in current production are designed for direct refrigeration of wholesale milk and wholesale meat trucks. He added that the company expects to announce soon a unit for use with hold-over plates.

The refrigeration unit, he continued, operates off the truck engine through an electric clutch mounted beneath the cross member at the front of the truck engine. It is timed to prevent shock to the truck power system when the refrigeration system is engaged.

Flexible Driveshaft Transmits Power

A flexible drive shaft attached to the clutch, transmits power from the truck to the condensing unit. This is the first time a flexible drive shaft has been applied to truck refrigeration, Fitzgerald said.

The crankshaft pulley, clutch, and flexible drive shaft operate continuously when the truck engine is running, providing continuous operation of the unit, he noted.

Temperature in the truck body is not thermostatically controlled, Fitzgerald said. Instead it is controlled by fin-coil temperature. This is how it works:

A control bulb is inserted among the fins on the evaporator. When fin temperature drops to 32.5° F., the temperature sensing device causes an A-P by-pass valve to open. This permits hot gas passing through a line connecting the compressor discharge with the gas inlet at the coil, to enter the coil. The hot gas prevents the formation of frost on the coil. When it reaches the control bulb, the heat closes the valve and refrigeration begins again.

No Interruption For Defrosting

This arrangement permits continuous operation without interruption for defrosting, Fitzgerald declared. It permits the temperature of the coil to be held at the coldest point at which it can be operated without frosting. It also wastes the excess refrigeration that is generated at high speeds and that is not needed to cool the truck body.

Fitzgerald added that the frost preventive valve limits the work done by either the truck engine or the standby compressor to the amount required to balance the heat load.

Another feature of the new system, he asserted, is the ram jet condenser, which provides

(Concluded on next page)

You need no tools when you bend dead-soft DRYSEAL . . . just hands . . . while the special temper and ductility of DRYSEAL make it easy to flare for compression fittings without danger of splitting. Another thing you'll like about DRYSEAL is the double-crimp seal at each end of the tube. This is the final step in manufacturing, immediately following a special cleaning and dehydrating operation. This keeps dirt and moisture from entering the tube. The seal is made in such a way as not to change the diameter of the tube so that it can pass through any opening large enough for the tube itself. Tube sizes— ⅛" to ¾" O.D. The DRYSEAL carton, attractively designed for easy identification, contains one 50-foot coil . . . is easier to handle, light weight, economical and sturdily made to assure protection of the tube in stock and in transit.

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Sales Offices in Principal Cities, Distributors Everywhere.

For more information about products advertised on this page use Information Center, page 22.

Truck System Described--

(Concluded from preceding page)

rapid movement of air and dissipation of heat. He explained that the condenser fan is shrouded and mounted with the blades at right angles to the coil and at its forward end.

The fan is mounted so as to be at the front wall of the truck body so that outside air is rammed into the system when the truck is in motion. The shroud around the fan extends the full length of the coil, narrowing toward the far end.

Truck Movement Forces Air Over Fan

Air is forced in over the fan when the truck is in motion. It is slightly condensed and then pulled out through the condenser fins by the truck's velocity, Fitzgerald noted. In this way, more air is pulled over the condenser, increasing capacity and lowering head pressure.

The same idea is used with the evaporator coil inside the truck body. The fan is placed on the cold air side of the evaporator and pulls air over it. Shrouding enables the fan to get the use of the entire coil area.

The condenser unit is mounted on its frame by two inboard and two outboard bolts. When the two outboard bolts are removed and the two inboard bolts loosened, the condenser unit tips down to give the serviceman access to the generator and compressor.

The generator supplies all of the power needed for the refrigeration unit, so that there is no drain on the truck's batteries.

The trailer refrigeration unit, labeled the AL-36, is designed for medium temperature trailers up to 40 ft. in length. A live axle on the trailer drives the Kold-Trux unit as the trailer moves down the road, Fitzgerald explained. The drive shaft supplies power to the refrigeration unit.

Pillow explained to the servicemen that truck plates are a means of pre-storing refrigeration effect for use as needed. Thus, the plates, filled with a eutectic solution, can be charged from an appropriately sized condensing unit at the loading dock. Then, while the truck is on the road, the plates will absorb the heat load inside the truck body to keep the temperature below the desired level.

To do this, he noted, the evaporator in the truck plate must be properly proportioned to extract latent and picked up specific heat in the allowable operating time with a practical condensing unit.

The evaporator must be so designed and distributed as to produce controlled freezing at an acceptable rate and in proper sequence under any condition.

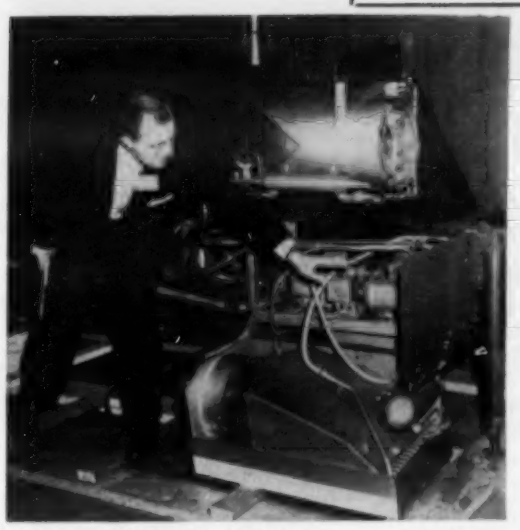
There must also be a correct proportion of tank external area to the refrigeration effect storage capacity to induce full, or nearly full, usage in the practical time at the desired temperature difference.

Pillow emphasized that with hold-over plates, temperature cannot be precisely controlled. By proper application, temperature can be controlled within an acceptable range, however.

In order to meet different needs, truck plates are made in different thicknesses and with different temperature eutectic solutions.

By selecting the correct size plate and the correct solution, the temperature can be held within a given range for almost any desired length of time.

He pointed out that Kold-Hold has developed charts that will give this information to the engineer designing the system for a particular application.



WITH CONDENSER UNIT in tipped down position, Joe Fitzgerald, Kold-Hold sales manager, demonstrates accessibility of generator and compressor on new Mark refrigeration system for trucks.

TRAILER REFRIGERATION unit examined by servicemen at Tranter clinic. Live axle that drives unit is shown at right.

LARKIN
means low prices!

LARKIN CEILING HUMI-TEMP

Price is only one factor in the selection of any product—especially one that has so important a task as protecting valuable perishables. Performance must come first. Quality cannot be overlooked. Durability is highly important. Larkin has all of these. And Larkin has low prices, too. Compare them and see for yourself how low they are.

For the latest Larkin price list, see your wholesaler. If you wish, write direct to us. We shall be glad to send you one.

•

Manufacturers of the original Cross-Fin Coil • Humi-Temp Units • Frost-O-Trol Hot Gas Defroster • Air Cooled and Evaporative Condensers • Cooling Towers • Air Conditioning Units and Coils • Direct Expansion Water Coolers • Heat Exchangers

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REFRIGERATION PRESSURE REGULATORS that . . .

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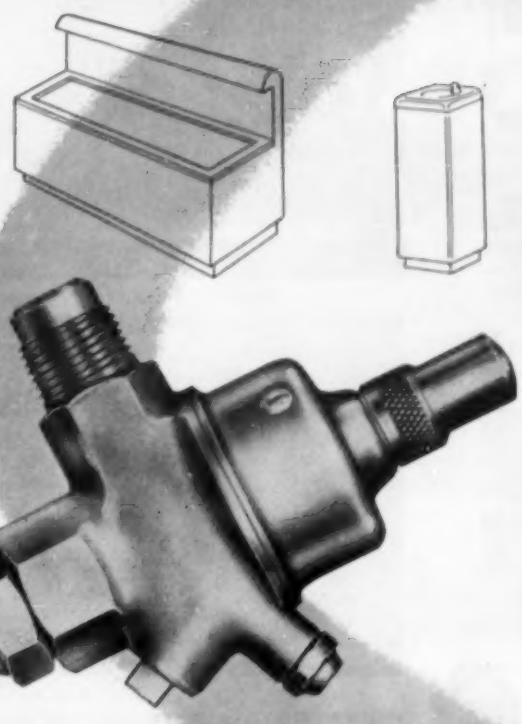
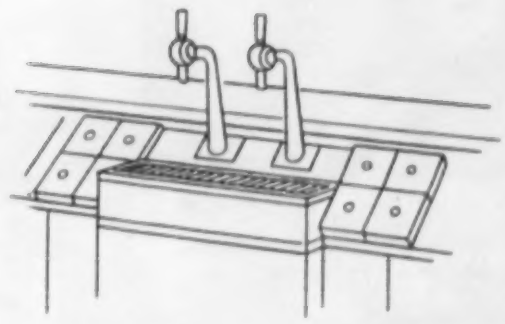


668 Evaporator Pressure Regulating Valve



Here's the solution to costly freeze-ups of water cooling equipment: the Detroit 668 Evaporator Pressure Regulating Valve.

The 668 prohibits freeze-up of water coolers, beverage coolers, and other water cooling equipment by preventing the suction pressure from going below the freezing point.

The 668 will accurately maintain evaporator pressure in accordance with its setting, and thereby accomplish individual evaporator control in single or multiple systems.

667 Crankcase Pressure Regulating Valve.

The Detroit 667 Crankcase Pressure Regulating Valve adds to the life of compressor motors by preventing overload. The 667 valve does this by holding back the pressure from the crankcase, regardless of the pressure in the evaporator. There is no overloading because the pressure cannot exceed the point at which motor overloading occurs, when the 667 is set to maintain the proper crankcase pressure. This valve is also ideal for use as the re-expansion device in hot gas defrost systems.

Cooling units equipped with Detroit 668 and 667 valves operate smoother, longer, and more efficiently.

For full information contact your Detroit Controls Wholesaler, or write for Bulletin 260-A.

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AUTOMATIC CONTROLS for REFRIGERATION
AIR CONDITIONING • DOMESTIC HEATING • AVIATION • TRANSPORTATION • HOME APPLIANCES • INDUSTRIAL USES

SLANTS ON SERVICE

"Slants on Service" is a "package" devised by the NEWS to meet the needs of its busy readers in the service and contracting business.

Questions, and Answers from 'Information Please' Session

Editor's Note: Some of the questions and answers brought up at the "Information Please" sessions during the RSES educational forum in San Antonio concern refrigeration problems of general interest, such as the following:

Stuck Compressor

Q. How can a stuck hermetic compressor be freed, and should a solvent be put into it?

A. "I don't know of any solvent that could be used," commented John Spence, Hussmann service manager.

"Capacitors can be used, or the terminals can be changed to reverse rotation. In the case of a semi-hermetic, if the above doesn't work, the end bells could be removed and the compressor possibly freed by hand. Using 220 volts momentarily on a 110-volt unit has been done, but it isn't a good policy," Spence declared.

He was somewhat dubious about any method used, however, explaining that "if a compressor sticks once, it will probably stick again."

* * *

Mixing Refrigerants

Q. Would it be okay to introduce a small amount of "Freon-22" in a "Freon-12" system to pick up moisture?"

A. "The moisture would still be in the system, so I would object to it," commented Paul Reed, RSES educational director.

* * *

Scaling In Tower

Q. Is there any relation between temperature and scaling in a cooling tower?

A. "As a general rule, as you increase the temperature you increase scale deposits, but while calcium carbonate will form more readily at elevated temperatures, calcium sulphate (gypsum) forms at lower temperatures," said Edward J. Ross, chief chemist, Garman Co., Inc.

* * *

Checking System Charge Without Sight Glass

Q. If you don't have a sight glass in the liquid line, how can you be sure you're getting liquid refrigerant at the expansion valve while operating at the lowest possible head pressure?

A. Check the temperature of the liquid line with a thermometer, keeping the thermometer no closer than 1 ft. from the expansion valve to avoid the cooling effect of the valve. Compare this temperature with the temperature at the receiver. There shouldn't be more than a 5 p.s.i. pressure drop in the liquid line.

If the liquid line feels cool to the hand, it's apt to mean pressure drop, provided the liquid line hasn't been sub-cooled by a suction line heat exchanger.

* * *

Cleaning System After Hermetic Burn-out

Q. How do you clean a system after the hermetic motor has burned out?

A. There is no solvent that can be used in the field to remove the "varnish" which forms and collects in the system, chiefly the condenser, as the result of a burn-out, pointed out Paul Reed.

Although there are various things that can be used in the shop, the best procedure in the field is to blow the system out thoroughly with refrigerant; take the expansion valve off and clean it, install a drier three to five times larger than would normally be used, and recharge with refrigerant and new oil.

Color of the oil should be checked every 30 days, advised John Spence. If the oil isn't clear, replace the oil and drier cartridge, repeating this procedure until the oil remains clear.

Don't let oil from a burned out system contact the skin because it may contain acid that can cause an almost incurable burn.

Burn-outs may affect controls also, clogging up capillary tubes and forming acids that may attack power elements.

* * *

High Test Pressures May Damage Controls

When dry nitrogen is used to flush out or test a refrigeration system, the pressure should be kept within reasonable limits to avoid damaging controls, points out R. H. Luscombe, general sales manager, Penn Controls, Inc.

Pressure should be limited to 200 to 225 p.s.i.g., certainly well under 300 p.s.i.g.

During evacuation of a system, bellows on controls will be pulled down to the stops provided, and then if extreme pressure is suddenly admitted to the system, the controls may be knocked out of calibration and the bellows weakened.

Century Names Nutt

ST. LOUIS—Appointment of Frank E. Nutt as sales promotion manager has been announced by Century Electric Co. He succeeds Anthony Neher who is retiring.

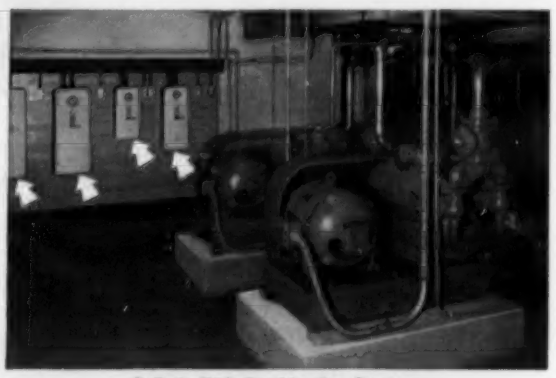
In his new capacity, Nutt will be located at the Century home office in St. Louis.

ALLEN-BRADLEY *Motor Controls and Accessories*

for Refrigeration and Air Conditioning

Bulletin 709 Across-the-Line Starters

Bulletin 837 temperature control



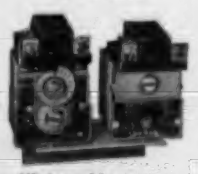
Bulletin 712 Combination Starters

Bulletin 836 pressure switch

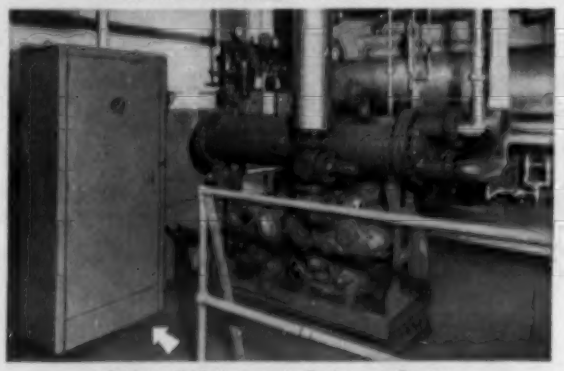
Bulletin 640 Manual Resistance Starters

Bulletin 849 pneumatic timer

Bulletin 646 Manual Autotransformer Starters

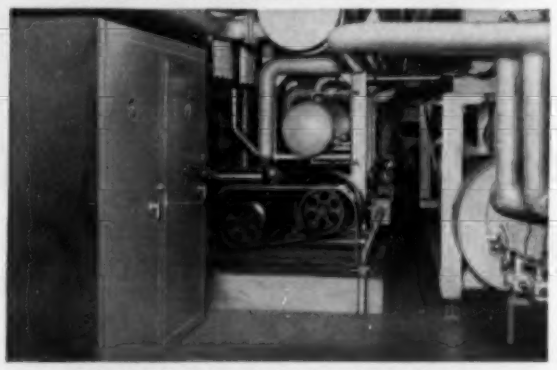


High and low pressure cutout



Bulletin 740 Automatic Resistance Starter

Bulletin 800 3-way selector switch



Bulletin 746 Automatic Autotransformer Starters

The Sign of Quality Motor Control

ALLEN-BRADLEY
SOLENOID MOTOR CONTROL
QUALITY

Allen-Bradley motor starters have the simplest contact mechanism yet devised for air-conditioning or refrigeration installations . . . only ONE moving part . . . the solenoid plunger which carries the double break contacts.

There are no trouble-causing pins, bearings, or jumpers. The cadmium silver alloy contacts never need cleaning, dressing, or filing . . . eliminating costly and troublesome maintenance.

Allen-Bradley timers, pressure and temperature switches are reliably accurate . . . precision operation is maintained over long periods of service.

Specify Allen-Bradley—the name that stands for "Quality" motor control. You cannot make a better selection!

Allen-Bradley Co.
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Coldin — Your Key To Better Refrigeration
COLDIN CABINET CO., Inc.
2800 Webster Ave.
New York 58, N. Y.

For more information about products advertised on this page use Information Center, page 22.

C. Braswell Collins' Widow Receives RTA 'Outstanding' Award

WASHINGTON, D. C.—Election of officers for the coming fiscal year and presentation of the group's first "Outstanding Achievement Award" featured the fourth annual convention of Refrigeration Trade Association of America held here March 3, it was reported.

Mrs. Bessie Collins, widow of C. Braswell Collins who was general counsel of the association until his death last Jan. 17 was recipient of the award.

Officers elected for the fiscal year beginning July 1 were L. L. Carter, president; Sidney Bloom, first vice president; J. B. Broughton, second vice president; O. Manley Smith, secretary; Leo Wolff, treasurer; Arthur Jarrett, sergeant-at-arms; and Henry Van Langen, H. F. Crater, Sr., Herbert S. Dudley, and A. C. Huber, directors for two years.

A. C. Bates, R. L. Dillard, M. J. Horwitz, George A. Brickle, George Nash, N. F. Crater, Sr., Sam Pollock, John Orner, R. H. Packett, and Henry Van Langen were appointed committee chairmen.

William G. Batrus was named general counsel, R. H. Packett, executive secretary, and N. F. Crater, Sr., chaplain, it was noted.

Coldcraft Appointed Recold Distributor

LOS ANGELES — Coldcraft Refrigeration Co., New York City, has been appointed distributor for "Recold" commercial and industrial refrigeration equipment in the Manhattan and Long Island, N. Y. area.

Announcement was made by Hy Jarvis, president of Refrigeration Engineering, Inc., which markets air conditioning and refrigeration equipment under the Recold trade name.

Herbert H. Schellhas operates Coldcraft. He was formerly with Frick Co. for nine years. His duties with Frick included supervising installation of equipment, engineering, and estimating.

'No Holds Barred' Idea Exchange Follows CRMA Conference Tour of Koch April 13

CHICAGO — Formation of a special committee to handle arrangements for the sixth annual plant tour and production conference sponsored by the Commercial Refrigerator Manufacturers Association was announced recently by Paul H. Sullivan, executive secretary of the association.

The tour and conference will be held April 13 at the plant of Koch Refrigerators, Inc. in Kansas City, Kan.

Chester K. Litman, president of Koch, was named chairman of the arrangements committee. He will be assisted by the following industry production executives:

Stuart A. Bergman, Friedrich Refrigerators, Inc.; John R. Caulk, Jr., Hussmann Refrigerator Co.; Wade M. Mayo, The Warren Co.; Herbert A. Stewart, C. V. Hill & Co.; and S. D. Vander Weg, Tyler Fixture Corp. Each of the companies named has acted as host member on past occasions.

Key production and engineering personnel of all member organizations are eligible to participate in the conference and tour, which feature a group inspection of the host member's facilities; a "no holds barred" exchange of ideas and suggestions for cutting costs, improving productive efficiency, handling labor relations problems, etc.; plus a variety of other topics as volunteered in discussions.

A traditional part of the program is a quiz session, in which the host member's technical staff explains their operations and offers suggestions for applying any techniques that have attracted unusual attention during the inspection of other member plants.

The Koch plant was selected for this year's group visit because it was constructed early in 1955 to fit current manufacturing conditions, and thus should prove a source of interesting new techniques, according to Sullivan.

The preceding day, April 12, will be devoted to the annual spring meeting of the association. It will be attended by principal management, financial, sales, and administrative executives of member organizations, under the leadership of CRMA's president, William J. Stelpflug, president of Hussmann Refrigeration, Inc.

The program will be devoted to an analysis of the industry's 1955 performance, which produced a volume increase of nearly 21% over 1954, and a series of panel discussions of current problems and trends.

Those attending will join that evening with the delegates to the plant tour and production conference for a cocktail party and testimonial dinner honoring the Koch organization, whose board chairman, Millard Mayer, is one of CRMA's founders.

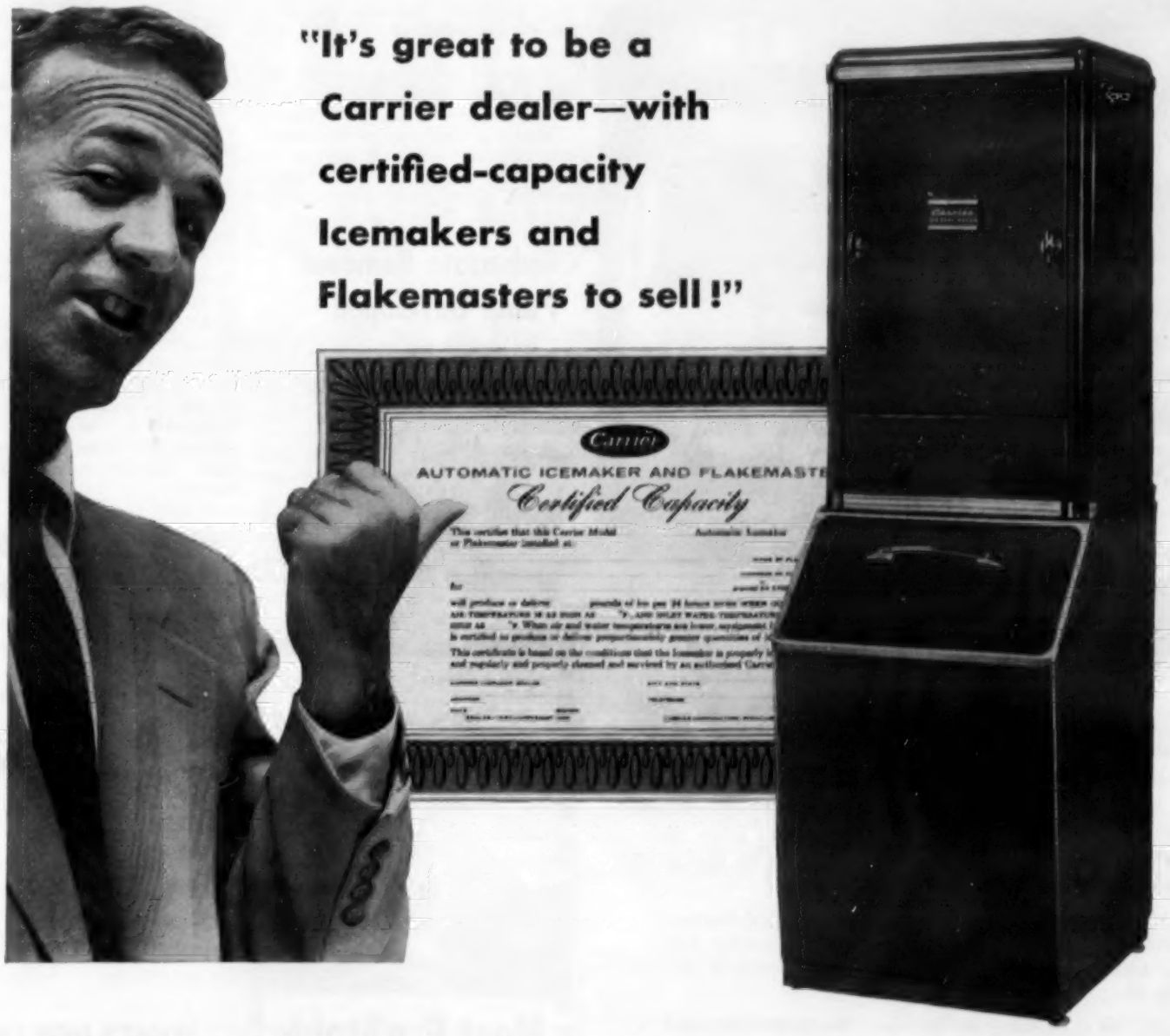
Byers Names Bricmont

PITTSBURGH — Robert J. Bricmont has been named manager of the engineering service department of A. M. Byers Co. here.

A graduate engineer of George Washington university, Bricmont joined the Byers organization, producer of wrought iron products, in 1952.

Firm Chartered

NEW ORLEANS—Charter of incorporation has been granted Marquez-Davila, Inc., air conditioning, 3316 Upperline St., listing capital stock of $200,000.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AUTOMATIC ICEMAKER AND FLAKEMASTE
Certified Capacity

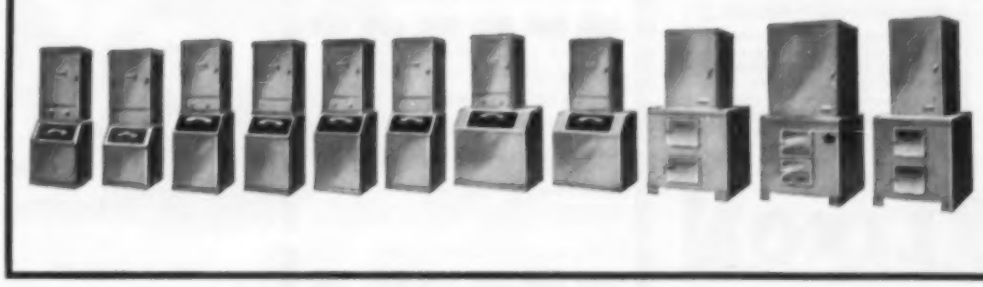
Talking capacity is one thing. Certifying it is quite another.

With Carrier Icemakers and Flakemasters, you make no vague promises, no weasel worded statements like "up to so many pounds of ice per day."

With Carrier you have accurate field-tested capacities to work with. Even better, these capacities are *certified in writing!*

There's a Capacity Certificate to cover every model, every operating condition. And Carrier stands squarely behind them all!

Even without certified capacity, you have it made. For no other line of automatic ice machines gives you eleven different models with features like these to sell: Icemakers that turn out cubes plus three grades of crushed ice—with jet action cleaning. And Flakemasters with simplified operation for making flaked ice that is hard and dry.



It's time to call your Carrier Distributor. He is listed in the Classified Telephone Directory. Or write Carrier Corporation, Syracuse, New York.

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Filtrine

"Taste Master" PURIFIERS for

WATER - COOLERS ICE MAKERS

Stop ... rust, dirt chlorine taste

... service breakdowns due to rust & sludge

Insures service satisfaction for all coolers, ice-makers! Clear, taste-free water ... crystal ice ... every day ... in all locations.

FILTRINE MFG COMPANY

216 W. PROSPECT ST. • WALDWICK, N. J.

Acme Announces 'Dry-Ex' Liquid Chiller Series

KEY NO. F-340

JACKSON, Mich.—Acme Industries, Inc. here has announced a new series of DXF "Dry-Ex" liquid chiller designed for today's refrigerants.

Effective heat transfer surface of tubing is more than doubled, the company claims. Heart of the unit is a star shaped aluminum insert imbedded in tube walls by a cold drawing process. The molecular contact established results in good heat conductivity and lifelong bond, it was added.

Pressure drop is minimized with clear passages for refrigerant flow in the aluminum insert.

"KLIXON Thermostats have proved to be completely reliable... have contributed appreciably to the success of our Automatic Defrosting Cabinet"

George Davis, Chief Engineer, Savage Arms Corporation

The ultra modern Savage Circulating Air Type Self Service Merchandising Cabinets with Automatic Defrost are tops in creating sales . . . tops, too, in dependability and trouble-free operation.

To help maintain their enviable reputation for performance, Savage specifies and uses Klixon C4391 Hermetically-sealed Thermostats in their cabinets.

Here's what Mr. George Davis, Chief Engineer, has to say about Klixon Controls —

"We have used Klixon hermetically sealed thermostats exclusively on our Automatic Defrosting Self Service Merchandising Cabinets since the start of production.

"This is exacting service since the thermostat must accurately control the length of the defrost period year in and year out to insure cabinet performance within our standards.

"Klixon Thermostats have proved to be completely reliable and uniformly calibrated to our specifications. We feel that the performance of these thermostats has contributed appreciably to the success of our Automatic Defrosting Cabinet under widely varied field conditions."

You, too, can help build and maintain product performance reputation of freezer cabinets, refrigerators, beverage coolers, air conditioning units, etc. by using Klixon Thermostat Controls.

KLIXON
Dome-Mounted Protectors
help hermetic compressors deliver maximum refrigeration day after day by keeping the motor running at the greatest capacity possible under the load condition involved — without danger of burnout.

METALS & CONTROLS CORPORATION
SPENCER THERMOSTAT DIVISION
2403 FOREST STREET, ATTLEBORO, MASS.

KLIXON®

General Vending Offers One-Motion Vendor

KEY NO. F-341

CHICAGO—New "Bevmart" and "Vendmor" selective vendors were announced recently by General Vending Machine Corp. here.

Incorporating a one-motion delivery, there are no delivery "gates," no toggles, no moving parts, according to the company. The customer deposits the coin, draws the bottle off the rack, and out the delivery track.

Standard coin mechanism and slug rejector is completely enclosed and concealed in the front column.

Bevmart vends up to five different flavors, Vendmor up to 10. Both will vend 6 or 12-oz. bottles without adjustment, the manufacturer said.

Condensate Removal Pump Developed

KEY NO. F-342

SKOKIE, Ill.—"Model C" condensate removal pump for air conditioning equipment was introduced here recently by March Mfg. Co., the firm announced.

It is said to have a 21-ft. vertical lift and 300-ft. horizontal run with capacity of 100 g.p.h. at 0 ft. and 8 g.p.h. at 21 ft. The unit is 6¼ in. high.

"Unimount" assembly maintains alignment and operation through mounting of all pump components in one casting, the company said. A ⅛ in. pipe with female thread allows use of brass hose connector for rubber hose, ¼ in. flare fitting for ¼ in .copper tubing, or for attaching ⅛ in. pipe directly to outlet.

"My Typhoon District Manager helps me figure complex jobs competitively and profitably," says Steve Filippone (left), Typhoon's Jersey City dealer.

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- Commercial Air Conditioners, 2 to 30 tons
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Find out how a Typhoon Direct Factory Franchise can make money for you. Send in this coupon today.

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Tell me about a Typhoon Franchise in my territory. Send me bulletin A-13.
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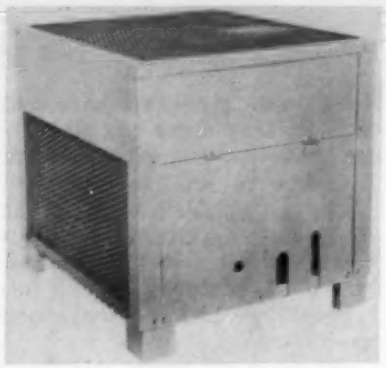


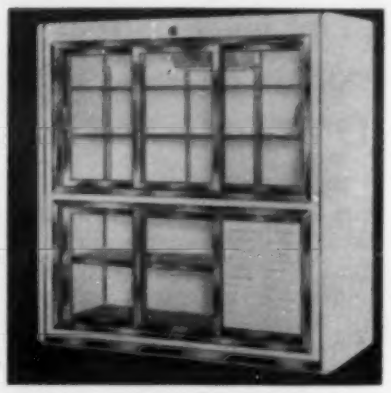
Coleman Adds 2,3,5-Ton Air-Cooled Unit Line

KEY NO. F-343

WICHITA, Kan.—Straight air-cooled condensing units in 2, 3, and 5-ton sizes have been added by Coleman Co., Inc. to its line of packaged remote air conditioning components.

The new units operate at the dry-bulb temperature of the air. Other Coleman air-cooled units condense at wet-bulb temperature, cooling the condensing air by means of a recirculating water spray.

All three of the new units have hermetically-sealed compressors. Coils are copper with aluminum fins. A hinged door affords easy access to controls. The units are designed to be used with the "Blend-Air" line of direct expansion plenum coils and vertical coolers.



Evans Introduces 6-Ft. Reach-In Wall Case

KEY NO. F-344

MOUNT VERNON, N. Y. — Model EWS-72, a self-contained 6-ft. reach-in wall case was offered here recently by Evans Mfg. Corp., it was announced.

Three glass sliding doors at the upper part of the case, and two on the lower section open to the fluorescent-illuminated interior. Heavy duty adjustable wire shelves, an "Even-Air" blower system, and baked enamel interior and exterior are other features, it was added.

System Operates Centrifugal Pumps

KEY NO. F-345

JOHNSTOWN, Pa.—Flood City Brass & Electric Co. here has announced a new automatic system for operating centrifugal pumps.

"The new system, which can be applied to any existing or new centrifugal pump installation, is inexpensive and simple to install," the company said. "It operates a centrifugal pump automatically and eliminates the need for vacuum pumps in the system. Only occasional maintenance and inspection are required."

Information Center

For *more information* on What's New products, current literature and catalogs available, equipment advertised in AIR CONDITIONING & REFRIGERATION NEWS use Key Numbers where designated or specify products advertised and we'll see that you receive this information promptly.

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For more information about products advertised on this page use Information Center, page 22.

Hastings Re-Designs 2-Man Hoist

——KEY NO. F-346——

OMAHA, Neb.—Hastings Air Control, Inc. here has announced a new, improved lightweight two-man hoist said to be capable of lifting 4,000 lbs. as high as 18 ft.

Designed for erecting suspended or platform-mounted equipment, the "Hoist-It" is particularly useful in the installation of suspended air conditioners, air handling units, elevated window air conditioners, unit heaters, horizontal furnaces, and other such equipment.

The new Hoist-It is collapsible and can be "quickly assembled and easily carried from job to job."

Fischman Produces Fountain Carbonator

——KEY NO. F-347——

PHILADELPHIA — Fischman Co. here recently began production on a heavy duty carbonator for fountain use, the manufacturer announced.

"New Improved Spark-L-Mix" model 6,000-VO has no floats, electrodes, or intricate switch mechanisms, the firm said. The carbonator employs a jet nozzle atomizing system to screen impurities.

Claimed to deliver a consistent 60 gals. soda water an hour, the unit utilizes a stainless steel tank with welded fittings. It is powered by a ¼-hp. motor with built-in overload relay. Over-all weight is 60 lbs., the company stated.

Portable Dehumidifier Developed by Admiral

——KEY NO. F-348——

CHICAGO—A portable dehumidifier mounted on four swivel casters has been introduced by Admiral Corp.

It can be plugged into any standard 110-115-volt a.c. outlet for immediate operation.

"The new model controls moisture in closed areas up to 10,000 cu. ft., and is capable of removing as much as 24 pints of water from the air every 24 hours," the company said.

The dehumidifier is 13½ in. wide, 20¼ in. high, and is finished in grey-beige enamel. The hermetically-sealed ⅛-hp. compressor never requires oiling.

Young Offers 3 Styles of 'Roomaire' Conditioner

——KEY NO. F-349——

RACINE, Wis. — "Roomaire" conditioner, a remote-type room air conditioning unit providing year-round air conditioning of individual rooms in multi-room installations, is now available in three new styles, the Young Radiator Co. has announced.

They are: Type CFW, concealed floor model; Type CHW, concealed horizontal model; and Type HW, horizontal cabinet model.

With the inclusion of the previously available Type FW, free standing or partially recessed model, Young now provides a selection of four Roomaire conditioner styles.

Type CFW Roomaire conditioners are designed for built-in installations in an outside wall, either directly below the window sill, or back of a finished wall panel.

Air is discharged from the top of the unit through a duct connected to an outlet grille in the window sill or wall. Air is returned to the unit through a return air grille located in a removable panel (by others) that provides access to the unit and built-in space.

Type CHW Roomaire conditioners are usually installed either in a closet or in a drop ceiling or furred space. Return air is brought to the unit through a plenum created by the closet or furred space.

Type HW Roomaire conditioners, with deluxe finished casing, are designed for exposed installation at the ceiling, with the necessity of employing ductwork eliminated.

Subject to individual room control, the services incorporated into these compact units are cooling and dehumidifying, heating, ventilating, cleaning, and circulating air as required.

For cooling, chilled water is circulated through the coil in the unit; and for heating, hot water. Only three pipes serve each unit—water supply, water return, and drain.

Roomaire conditioners are available in three sizes of 200, 400, and 600 c.f.m.

'Tu-Temp' Upright Combination Introduced

——KEY NO. F-3410——

MADISON, Wis.—A new dual-temperature upright freezer-refrigerator with a condensing unit for each section is now being introduced by the Sub-Zero Freezer Co., Inc. here.

Called the "Tu-Temp," the new model combines 9 cu. ft. of freezer space with a 9-cu. ft. refrigerator, yet takes only 27 in. by 34 in. of floor space and stands 62½ in.

Priced to retail at $699.50, the Tu-Temp contains in each section an individual, adjustable temperature control and hermetically sealed condensing unit, ⅛ hp. for the freezer, ⅛ hp. for the refrigerator.

The freezer section, below the refrigerator, can be regulated from 0° to minus 20°. It has a non-rusting all-aluminum interior, with three separate compartments divided by coiled refrigerated shelves.

'Magno-Level' Holds To Metal

——KEY NO. F-3411——

CLEVELAND—A new level with built-in, permanent magnets that holds the level on work without use of hands was announced here recently by Richards Merchandising, Inc.

Called "Magno-Level," the device is designed for use by plumbers, steamfitters, sheet metalworkers, and others.

York's new training program unlocks the door to big profits in home air conditioning

It took years to develop, but it was worth it! Because York now offers you a training program head and shoulders above anything else in the industry. It's designed for quick action . . . to get you into the rich residential field *fast*, and help you get *more out of it* once you're in! Only York, with over 70 years in the cooling field, could bring you such a course. You'll be taught by factory-trained experts, using methods that have been thoroughly tested and proved to work. And you don't have to be an engineer to follow what's going on. This is your chance to get in on the ground floor of the booming home air conditioning industry. Don't miss out! Call your nearby York distributor for complete details, or mail the coupon today!

York teaches you how . . . makes installation easier . . . gives you more to sell!

• York Home Air Conditioners are engineered and factory-assembled for *quick, easy installation*. Electrical controls pre-wired at the factory . . . you make only a few simple connections. York gets you in and out—fast!

• Each cooling system *hermetically sealed*. No belts, pulleys or gaskets—no nuts or bolts to leak, squeak or break. Oil and Freon are sealed in, no field charging, no tubes to run. Your profits don't go down the drain in costly service calls!

• Simple *capillary tube feed* controls flow of refrigerant. No summer-winter changeovers required. There's nothing to wear out—no tricky expansion valves to get out of order.

York has the models, too!

Waterless and water-cooled, "add-on," year-round, gas and oil-fired, remote systems, handsome packaged units . . . there's a York Air Conditioner for every need. Across the board, York gives you *more* . . . more training, more quality, more models, *more profits!* Get in touch with your York distributor today. Or mail this coupon.

York refrigeration air-conditioning *the quality name in air conditioning*

Manager of Sales, Commercial Division
York Corporation, York, Pa.

Rush me complete details on York's new Training Program and what it means to me.

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ACM

Mr. Heating Contractor:

Get a solid footing on big air conditioning sales and profits!

Air Conditioning & Refrigeration News Now Offers You Helpful New Air Conditioning Books

IT'S GOOD PRACTICE to know as much as possible about the business we're in, and to stay abreast of current developments in the field. For this reason, the NEWS strives to keep you posted on what's going on in the field of home comfort, and to let you know about all the new opportunities in air conditioning.

If you're planning more cooling, as well as heating jobs this year, you'll be on the lookout for pertinent information more than ever! Chances are you're looking for material on air conditioning to help increase your own perspective—and to give your staff a better background in the field.

The Editors of the NEWS now offer
these information-packed books on air conditioning . . .

"AIR CONDITIONING THE HOME" is a comprehensive study on the year-around residential air conditioning industry. It is a book you will want to keep for reference; 9" x 12" in size, well printed and abundantly illustrated—a worthy addition to your library.

"THE KEY TO AIR CONDITIONING" is a series of three manuals (K-1, K-2, K-3) that explain in everyday language, problems in air conditioning layout and installation. These books will help you sell more units, and make better installations.

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& REFRIGERATION
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THIS IS WHAT YOU WILL FIND IN THESE HELPFUL BOOKS:

Air Conditioning the Home

HOW MANY WANT IT. Residential air conditioning is expected to hit a goal of nearly 2-million units installed by 1965. Read how market conditions are today—and will be tomorrow. Read many, many reasons why people buy air conditioning, each reason a selling point for you.

HOW TO SELL IT. You'll learn the best financing approach, and price levels of units for different types of residences. Charts show you how to estimate the cost for various types of residential construction.

HOW DOES IT WORK. You will find representative installation diagrams and operating characteristics of certain systems. Many of the pitfalls of year-around residential air conditioning work are spelled out. Examples are given on how to estimate heat gain and how to bring the customer into your confidence in making estimates.

FHA REQUIREMENTS. Here in easy-to-read layout is the text of Bulletin ME-12 for quick reference or study.

Only $1.00 per copy. Use coupon to order copies for each key member of your staff.

The Key to Air Conditioning

MANUAL NO. K-1

PROPERTIES OF AIR. Relationships between atmospheric pressure, gauge pressure and absolute pressure, temperature, specific heat.

HEAT. Flow, relation of dry-bulb, wet-bulb, and dewpoint temperatures.

HUMIDITY. Kinds, permissible relative humidities in winter, spraying required for relative humidities, tables, problems.

PSYCHROMETRIC CHART. Description, application, testing installation, dewpoint lines straight, relative humidity lines, problems.

VENTILATION. Vitiated air, mechanical means, natural means, various exposures, methods of calculation for proper amount of ventilation.

AIR REQUIREMENTS. Air motion, air requirement formulas, tables, graphs, and problems.

REFRIGERATION. Cooling and dehumidifying, proper evaporative cooling, principles of operation, design, refrigeration cycle, power consumption, selection, examples, and graphs.

FANS. Connections to motor, parts of blower fans, types, ordering, selection.

AIR DISTRIBUTION. Grilles, registers, ceiling diffusers, self-contained units, remote type units.

MANUAL NO. K-2

SHEET METAL DUCTS. Various elements of ductwork are explained in detail; flow of air in ducts, and sizing methods.

AIR CLEANING DEVICES. Types of air filters, cleaning efficiency, sizes and capacities, typical arrangements.

HEAT TRANSMISSION COEFFICIENTS. Heat transmission factors of building materials, tables of heat transmission coefficients.

COOLING LOAD. Design conditions, design wet-bulb and dry-bulb temperatures for principal cities, factors to calculate heat gain.

AMOUNT OF AIR THROUGH COOLING COILS. Advantages and disadvantages of passing all air through coils, formulas and charts.

EXPANSION COILS, VALVES, AND COMPRESSORS. Selection, recommended velocities through coils, physical data of coils.

SELECTION OF WATER COOLING COILS. Counterflow principles, dry pre-cooling coils, charts for selecting coils, physical data on water coils.

MANUAL NO. K-3

HEATING. Types of heating systems, location, design conditions, normal heat transmission, problems, steam required, exposure factors.

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WATER-COOLING TOWERS. Types, performance, selection, friction head of water tower system, installation diagrams.

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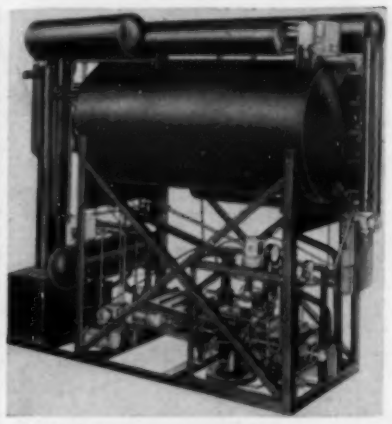
For more information about products advertised on this page use Information Center, page 22.

PICTURED is the "Sun Valley" 3-ton gas-operated year-round air conditioner introduced by Servel that provides heating and cooling through one heat exchanger for residential use.



A 25-TON absorption water chiller with factory-assembled operating and safety controls was also introduced recently by Servel. It can be modulated in capacity for any need up to 25 tons, the firm claims.

Servel Offers 2 New Units--

(Concluded from Page 1)

thony J. DeFino, vice president and general manager of Servel's air conditioning division.

On the cooling cycle, the gas flame, when applied to the generator of the absorption unit, boils the lithium bromide and water solution. The water vapor thus produced goes to the condenser where it is condensed. It then goes into the single coil over which air is passed by the blower.

HEAT REMOVED BY ABSORPTION

Heat is removed from the air and the water vapor, through the process of absorption, is returned to the liquid state and by gravity flows to the generator to be used over again.

The heating cycle operates in the same way except that the hot water vapor by-passes the condenser and goes directly to the single coil.

There it heats the air passed over it.

ONE HOUR INSTALLATION CLAIMED FOR UNIT

The unit is controlled by a room thermostat, which permits selection of desired temperatures and switching from heating to cooling, or to air circulation only.

DeFino said the unit can be installed in one hour. He said it is ready for utility connections, ducts, and vents after uncrating and setting in place.

Designated the FCA-96GN, the unit delivers a maximum of 1,600 c.f.m. on the cooling cycle with the built-in by-pass open.

Servel's air conditioning line also includes 2 and 5-ton units for residential and commercial use.

The packaged water chiller can be modulated in capacity to meet any need up to the full 25 tons, DeFino declared. It may be reduced to as low as 50% of rating with a corresponding reduction in steam consumption.

The new unit utilizes between 6 and 15 lbs. of steam pressure from any source. Connections to water, steam, and electricity are all that are needed to put the chiller in operation, he said.

Phila. ASRE Holds Seminar April 14

PHILADELPHIA—An all-day seminar on refrigeration fundamentals will be sponsored here April 14 by the local section of American Society of Refrigerating Engineers, the group announced recently.

Six topics will be discussed at the Engineer's Club from 9 a.m. to 4 p.m. with Gus Lawrence of Kinetic Chemical Div., section chairman, acting as moderator.

Speeches include "Refrigerant Cycle" by Ralph Lambert of Worthington Corp.; "Compressors" by John Seelaus, York Corp.; "Condensers," Ott Nussbaum, Kramer Trenton Co.; "Low Sides," Ted McLaughlin, Ranco Inc.; "Refrigeration Piping," Fran House, Mueller Brass Co.; and "Metering Devices," Walter Staats, York Corp.

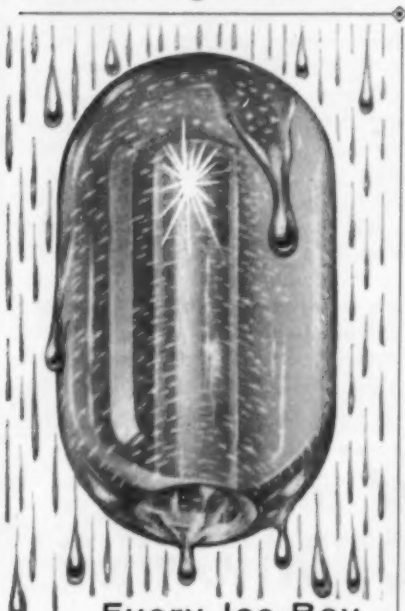
Honeywell To Build Big Distributing Warehouse

PHILADELPHIA—Ballinger-Meserole Co., warehouse and distribution consulting firm, has been retained to design the layout and operation of a 200,000-sq. ft. distributing warehouse to be located in the Minneapolis area for Minneapolis-Honeywell Regulator Co.

Thousands of finished products will be distributed from the depot, which will also house certain repair and parts departments.

James H. Binger, M-H vice president, said the Philadelphia firm was retained to "analyze our inventory and determine how much cubeage will be needed to properly house it, and to specify the handling techniques for moving it in and out."

Exact site for the depot has not yet been announced.



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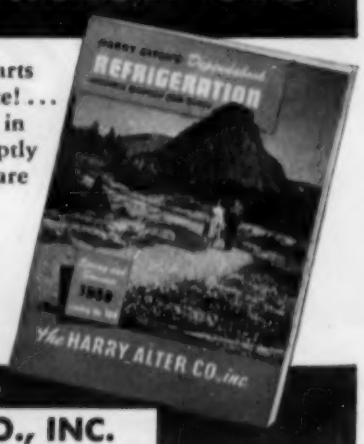

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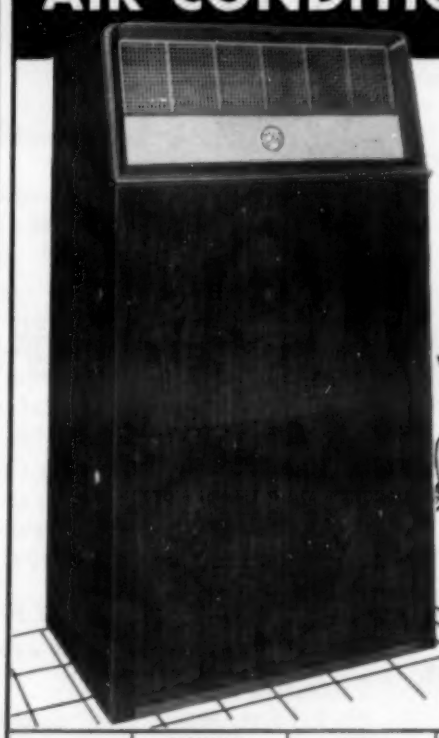

Smallest air-cooled, self-contained (not remote) 5-ton central type unit made.

5 natural wood-grain finishes available on all free-standing models.

Completely automatic, thermostat controlled, air-cooled condenser.

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(with air distribution head)

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FL-2	2 Ton	24,000	900 @ .3 S.P.	30Wx21Dx43H
RO-26	2 Ton	24,000	1000 @ .3 S.P.	30Wx21Dx34H
RO-31	3 Ton	36,000	1200 @ .2 S.P.	30Wx23Dx38H
RO-31 H P	3 Ton	37,700	1400 @ .3 S.P.	30Wx25Dx40H
RO-525 A	5 Ton	65,500	1800-2400 @ .3 S.P.	40Wx26Dx57H

Thermostat has 3 positions: Continuous — Automatic, Fan & Compressor — OFF.

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FIVE YEAR GUARANTEE — easy payment plan

Servicing Automobile Air Conditioners

BY C. DALE MERICLE

This is the second instalment describing the air conditioning system installed in Lincoln and Mercury cars.

Makes previously discussed have included A.R.A., Frigikar, Automotive Air Conditioning, Pivot, Novi, Oldsmobile, Buick, Pontiac, Chevrolet, Ford, Nash, Mark IV, and Mobil-Aire.

LINCOLN-MERCURY (2)

Lincoln-Mercury Div.
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Detroit 32, Mich.

Condenser

Condenser, as stated, is located in front of the car radiator. Inlet is at the top right, outlet at bottom right side.

A modulating by-pass valve is connected into the condenser on the left side. By-pass line runs from the by-pass valve to the suction service valve assembly on the right fender apron.

Function of the modulating valve, which is pressure controlled, is to by-pass refrigerant to maintain constant cooling effect, or no cooling, as desired. A manual over-ride of the by-pass valve spring setting is provided by means of a bowden cable running from the valve to the control on the instrument panel.

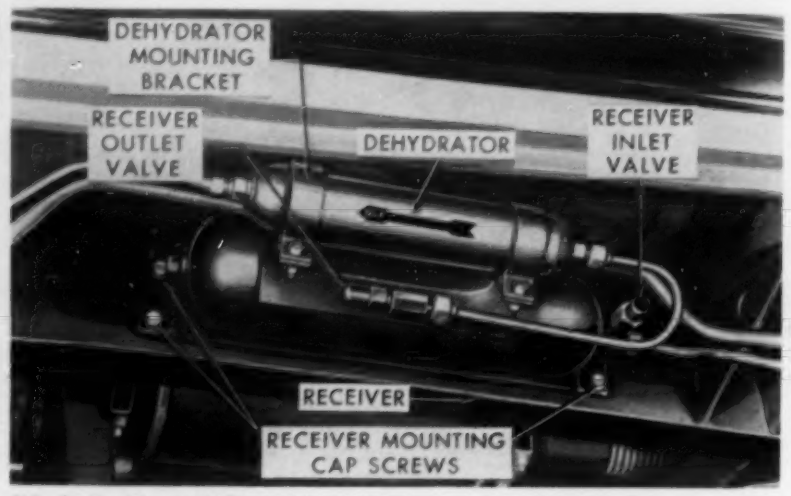

FIG. 3—Previous to 1956 models, dehydrator and receiver were separate. A combination unit without shut-off valves was introduced on 1956 models.

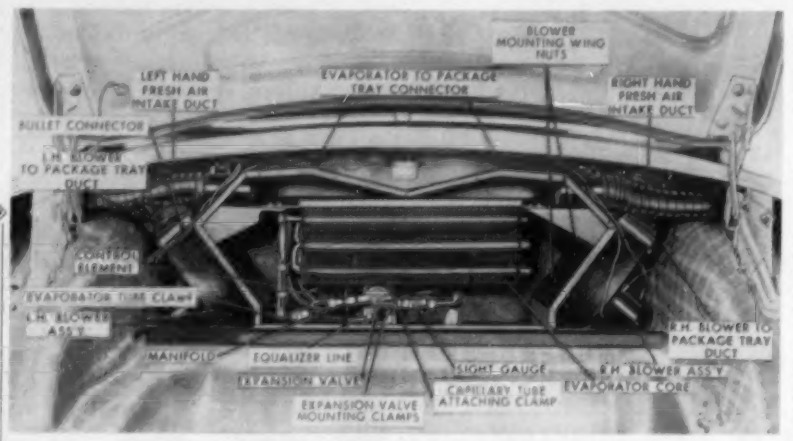

FIG. 4—Evaporator assembly is installed in trunk.

FIG. 5—Liquid line sight glass can be observed through opening in nameplate on evaporator housing.

Receiver

On 1955 and earlier models, the receiver is mounted on the car frame on right side approximately under the front door, and is fitted with inlet and outlet shutoff valves. (See Fig. 3).

A separate silica gel dehydrator is mounted on the receiver body. A short length of tubing runs from the receiver outlet to the dehydrator inlet.

In 1956 models (Lincoln and Mercury) the dehydrator is built into the receiver. In the event a new dehydrator has to be installed, the complete dehydrator-receiver assembly must be replaced. Also, the shut-off valves are eliminated in the 1956 dehydrator-receiver assembly.

Evaporator

Evaporator assembly (Fig. 4), in the trunk, includes evaporator coil, thermostatic expansion valve, blowers, filter, and liquid line sight glass.

The expansion valve has an external equalizer which is connected into the suction line just ahead of the bulb location.

Sight glass is at the bottom of the evaporator housing and can be seen through an opening in the name plate. (See Fig. 5).

A blower is mounted on the outside of the evaporator housing proper on each side. Flexible connections are provided between the blowers and ducts which extend along the right and left sides of the headlining.

Opening from each of the ducts in the roof headlining are two air registers, thus providing two air outlets for the front seat and two for the rear seat. The four air outlets can be adjusted by passengers to regulate direction and circulation.

Return air intake is located in center of parcel shelf. Air filter is in evaporator housing.

Provision is also made in Lincoln and Mercury systems for introduction of 15% to 20% outside air. There are scoops on the rear quarter panel on both sides connected to flexible ducts extending into the return air plenum of evaporator housing.

Dampers are provided, however to shut off the outside air supply as conditions warrant. It is recommended that the outside air dampers be closed in winter. Levers to open or close the outside air dampers are located on each side of the return air grille in the package tray.

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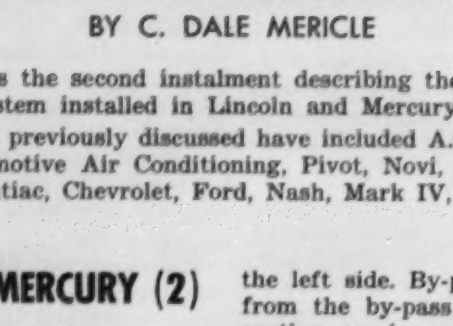

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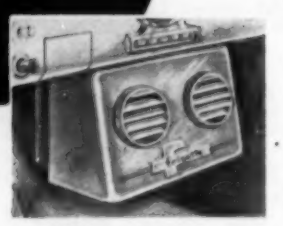

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FRIGETTE is engineered to a standard, not a price. Its LeHigh compressor is the *only* one specially designed for automotive use. Yet its cost is such that every interested prospect can afford to buy!

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For more information about products advertised on this page use Information Center, page 22.

NARDA Trade-In Guide Announces New Format

——KEY NO. R-340——

MADISON, Wis.—The National Appliance Trade-In Guide Co., publisher of the official NARDA Trade-In Blue Books, announces an entirely new format for the 1956 Trade-In Blue Books.

Changes include:

1. Consolidation of the 1955 Kitchen Appliance and Home Laundry Blue Books into one complete manual covering all major white goods.
2. Inclusion, for the first time, of suggested list prices as well as revised trade-in value.
3. Articles by nationally-known experts on how to use the Blue Books, the reconditioning, advertising, display, sale of trade-ins.
4. Full-page ads by manufacturers of parts and supplies.

The new format permits these additions without any increase in size over last year's books, it was stated.

The TV Blue Book is priced at $5 per copy. The combined Appliance Blue Book is $7.50 per copy. The two books can be purchased as a set for $10 per set.

Spence Engineering Describes 2 Valves

——KEY NO. R-341——

WALDEN, N. Y.—Spence Engineering Co., Inc. here recently issued a 4-page bulletin describing two models of the firm's direct-operated water pressure reducing valves, it was announced.

The bulletin details special features of two models, lists available sizes, initial pressures, reduced pressure ranges, water capacity in g.p.m., and typical applications.

V-Belt Care Is Topic Of Goodrich Manual

——KEY NO. R-342——

AKRON, Ohio—A 14-page illustrated manual on care and maintenance of industrial V-belts was published recently by B. F. Goodrich Co. Industrial Products Div. here.

The manual covers designing new drive, double matching, installation of belts, how V-belts grip, importance of tension, drive alignment, how to clean, and storage, the company said.

A service chart showing typical causes of belt failure is featured. Full-scale photographs show what belts look like after failure due to oil deterioration, cover fabric rupture, slip burn, ply separation, ruptured cords, worn belt sides, snub break, distorted belt, abrasion, and base cracking.

Book Covers 'Scotsman Super Flaker' Line

——KEY NO. R-343——

ALBERT LEA, Minn.—A six-page booklet on the "Scotsman Super Flaker" line of crushed ice machines is being offered by American Gas Machine Co., Div. of Queen Stove Works, Inc.

The booklet covers the complete line of Scotsman Super Flaker models: Eight different capacities, from maximum output of 200 lbs. per day to 2,000 lbs. per day.

"Automatic Storage" models with self-contained stainless steel bins are shown, as well as "Continuous Flow" types that produce ice direct to bins, coolers, or other containers.

Standard Assn. Revises Drainage Fitting Data

——KEY NO. R-344——

NEW YORK CITY—American Standards Association here recently issued a revised 21-page standard published by American Society of Mechanical Engineers covering cast-brass solder-joint drainage fittings.

It describes various types of fittings designed for use with copper water tube and gives standard pitches, abbreviations for connections, and standard sizes. Methods of designating openings for reducing fittings, nationally-agreed upon markings and tolerances, and minimum requirements for material are also shown, along with tables and 70 diagrams.

Vibration Control Material Illustrated

——KEY NO. R-345——

HAWTHORNE, N. J.—Recently released by T. R. Finn & Co., Inc. here is an illustrated catalog which describes "Isolant," a complete line of vibration control material.

Catalog No. IS-55 details the hermetically sealed granular structure of Isolant which isolates machinery from vibration, shock, and noise, the company stated.

Descriptions of typical installations are given along with proper installation methods. Types, load ranges, standard sizes, and thicknesses with suggested specifications and Finn engineering services also are included, it was said.

Cold Storage Door Selection Described

——KEY NO. R-346——

HAGERSTOWN, Md.—A new 20-page booklet to help architects, contractors, and refrigeration engineers select and specify cold storage doors has been issued by the Jamison Cold Storage Door Co.

It recommends doors for every standard operating requirement. The content goes into temperatures, insulation, type of door swing, and sill construction.

One section deals with the problem of moisture in its various forms, and another discusses doors for extra hard usage. Doors for heavy traffic are recommended, together with features to prevent their freezing shut.

Typical specifications for the main door types are given along with a comprehensive check list of operating conditions and the door best suited to each.

Wolverine Shows 'Way to Better Water Heaters'

——KEY NO. R-347——

DETROIT — Wolverine Tube, Div. of Calumet & Hecla, Inc. recently announced a new booklet for the water heater industry, "The Way to Better Water Heaters — Using Wolverine Trufin W/H."

The booklet deals with economies claimed by the firm in using integrally finned tube Trufin W/H in making tankless water heater coils.

G-E Bulletin Covers Low-Voltage Controls

——KEY NO. R-348——

SCHENECTADY, N. Y.—A new 28-page bulletin, GEA-4746B, covering General Electric's complete line of control and transfer switches for low-voltage applications up to 600 volts a.c. or d.c., is now available.

Publication includes photos, drawings, cutaways, and discussion of special features. Switches with water-tight and explosion-proof housings are described. The bulletin also contains application data, representative contact diagrams, and ordering directions.

Class III High Velocity System Fans Cataloged

——KEY NO. R-349——

LA CROSSE, Wis.—The Trane Co. has published a catalog covering Class III fans, especially designed for high velocity air conditioning systems.

The fans are also ideally suited for industrial use, it was said.

ASPIR-JET
SPRAY NOZZLES RAISE TOWER EFFICIENCY

The swirling, atomizing action of the water as it goes through the Aspir-Jet means more effective heat transfer and higher efficiency from any spray-filled cooling tower. Pressure as low as ½ pound gives effective water break-up and distribution. Formed of butyrate plastic, Aspir-Jets will not corrode.

• Available through Refrigeration and Air Conditioning Wholesalers.

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YES, STANDARD FOR ORIGINAL EQUIPMENT
REMCO SUPER-FLO FILTER-DRIER

Remco equipment, such as the Super-Flo Filter-Drier, is *Original Equipment Standard* to 112 American manufacturers of air conditioning and refrigeration equipment.

Why? Because the Super-Flo gives massive depth filtering with a fiberglas bag to remove *unprecedented* quantities of minute foreign particles. The unexcelled molded Remcal drying element will continue permanent refrigerant drying at peak efficiency even at liquid-line temperatures *thru 200° F.* And to top it all, there's excellent acid control and no measurable pressure drop!

Remco's Super-Flo for Freon 12 and 22 is available in brass or low-cost steel, with flare, sweat or silver brazing connections. Bursting pressure minimum for steel is 2400 psi, and for brass thru 2250.

For automotive air conditioning the Super-Flo is available as a Receiver-Filter-Drier Liquid Indicator combination. For any application, Super-Flo is standard for *original equipment.*

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AVAILABLE IN
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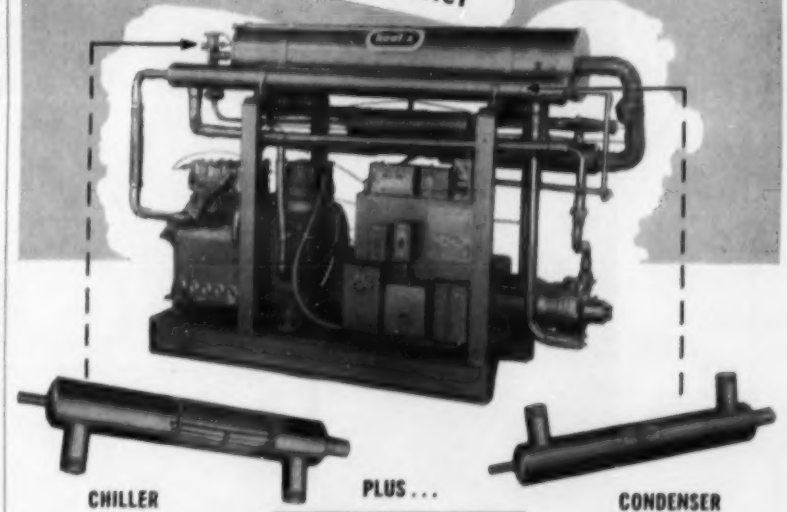
THE ONLY PACKAGE CHILLERS WITH THESE "EXTRAS"

All Non-Ferrous Water Passages
Inner-Fin Construction
Capacity Controller



CHILLER

Exclusive Inner-Fin design. All water passages of non-ferrous construction. Single pass, eliminating any oil trapping problem. Insulated with rock cork covered with sheet metal casing.

PLUS . . .

Combination Superheater-HEAT INTERCHANGER

Provides increased subcooling, thereby improving expansion valve performance and permitting full use of entire evaporator surface. This unit is also the basic component of the capacity controller.

CONDENSER

Patented Inner-Fin construction. All non-ferrous water passages eliminate any corrosion problem. Copper inner-fins in refrigerant passages greatly increase heat transfer efficiency.

PATENTED INNER-FIN CONSTRUCTION of refrigerant passages means 'PC' Chillers provide greater cooling capacity with much less bulk. Non-Ferrous construction of all water passages eliminates any corrosion problem.

Capacity Control, available on 2 HP through 15 HP models for use with hermetic and semi-hermetic units, eliminates short-cycling during light load conditions and maintains constant suction pressure.

Entirely self-contained, 'PC' units are delivered completely wired, ready to install. Available in 2 HP through 75 HP models.

Catalog No. 1044 Containing Complete Specifications FREE on Request.

HEAT-X, Inc.
BREWSTER • NEW YORK

Refrigeration Problems
And Their Solution

By Paul Reed

For Service and Installation Engineers

Spring Service on Room Units (3)

"I GET A SHOCK FROM MY ROOM UNIT"

When this happens, it is obvious that someplace on the unit a "hot" wire is in electrical contact with the frame of the unit. When a person touches the frame, the electricity passes through his body, then to the ground, thus completing the circuit.

This can be very dangerous. Do not make the mistake of regarding an electrical shock as a minor nuisance. The electricity may paralyze the nervous system and cause death. Or it can cause bad burns that heal slowly.

Some people are more affected by an electrical shock than others; a mild shock may make them ill for hours afterward.

The intensity of an electrical shock, that is, how "hard" a shock it is, depends mostly on how good a contact the person has with the "hot" wire and with the ground. If his hands are wet, so that he makes good contact with the "hot" line, or if he is standing on a wet floor or touching a radiator, water pipe, or other metal fixture, making good contact with the ground, he may get a hard shock —enough to cause death.

ELECTRICITY DOESN'T FOOL; IT IS DANGEROUS

Some men get careless; some say that 115 volts isn't very dangerous. It is, as proven by the fact that deaths by electrical shock in the home are very common. Any voltage over about 30 volts is dangerous.

When you get a call of this kind, tell the user, on the phone, to not touch the unit and that you will be right out.

When you get there, pull the extension cord, turn off the branch circuit switch, or take out the branch fuses. Then test the unit for grounds by means of a test cord, sometimes called a continuity tester.

The most likely places for grounded "hot" wires are at the connection terminals. The insulation around the terminal may be broken down, wet, or otherwise leaking electricity to the frame. Vibration may have caused the insulation on connection wires to rub off and allow the wire inside to touch some part of the frame.

Some of these grounds can be found by visual inspection. Other sources of grounds are stator windings in motors, or the coils of relays. It may be necessary to disconnect the motors, relays, and connection cords, so that each can be tested separately and with the test cord in order to locate the ground.

EVERY ROOM AIR CONDITIONER SHOULD HAVE A GROUND WIRE

Ideally every electrical appliance in the home, office, shop, and elsewhere, should be protected by a ground wire. This is particularly true of washers, electric clothes dryers, disposal units, dishwashers, etc., where water is present, or, when being used, the owner may have wet hands or be standing on a wet or damp basement or kitchen floor.

Even floor lamps near radiators or floor registers are hazardous, and many people have been electrocuted by them. Chain pull lights in bathrooms are common causes of fatal shocks.

The window or through-the-wall conditioner is exposed to the wet or damp outside air. Under ordinary use, and particularly in humid weather, the cooling coil is wet from the condensed moisture, and the drain pan is also wet. So window units or through-the-wall type units should also be equipped with safety ground wires.

A ground wire is simply a wire, one end of which is connected to the frame of the conditioner or other appliance and the other end of which is connected to a water pipe, driven rod, or other metal that is permanently connected to the ground.

GROUND WIRE IS A BY-PASS

The ground wire simply bypasses any electrical leakage directly to the ground. The wire is a better conductor of electricity than the human body, so the electricity goes to the ground via the ground wire, with the result that even if a person touches a live frame or shell of a conditioner or other appliance, he will get no shock.

Portable power tools—electric drills, electric lawn mowers, etc., that are apt to be used outside or in damp places, should always be equipped with a ground wire.

So if you find a room air conditioner, or for that matter, any other air conditioner, without a ground wire, urge the user to have it equipped with a ground wire, whether it gives a shock now or not, or whether your local electrical code requires it or not. It won't forbid it.

Actually a ground wire does not have to be insulated, nor does it have to be a heavy wire. A single, bare, number 18 copper wire is adequate, and can usually be easily hidden. The main thing is to make sure that the connections of the ground wire to the appliance frame and to the water pipe or other ground system, are tight and made to the raw metal, not to painted surfaces. Check your local electrical code for requirements for ground wires or ground connections.

(To Be Continued)

Ballard's Chartered

SHREVEPORT, La. — Ballard's Air Conditioning, Inc., 726 Milam St., has been granted a charter by Secretary of State Wade O. Martin, Jr.

Permagum makes a perfect seal every time

Manufacturers and service men alike prefer the positive sealing action they get from Permagum. Used to seal inspection plates, pipe and conduit openings, refrigeration and display cases, Permagum eliminates the host of troubles which condensation can bring down on your head—from just plain heat loss to ruined insulation.

These men are using gray-white Permagum, which is odorless, never hardens, and can be painted over immediately after application. Since it won't attack insulation, it is ideal for use around electric wiring, rubber or plastics. Brown Permagum is a heavy-duty sealer which will adhere to any dry surface and remain pliable from 0° to 350°. Both forms come in 2½ lb. and 55 lb. slugs, while gray-white Permagum is also available in 80 ft. rolls of ⅜" cords and 20 ft. rolls of ⅝" cords.

Your wholesaler has Permagum —or write Refrigeration Division, VIRGINIA SMELTING Co., 119 Jefferson St., West Norfolk, Va.

VIRGINIA Chemicals

ESOTOO • KINETIC CHEMICAL'S "FREON" REFRIGERANTS • V METH-L CAN-O-GAS • PERMAGUM • WATER TREATMENT CHEMICALS PRESSTITE TAPE • KWIKWRAP • SUNISO REFRIGERATION OILS

Available in Canada and many other countries

Won't attack electrical insulation.

Seals pipe openings permanently.

Perfect for refrigerator and display cases.

For more information about products advertised on this page use Information Center, page 22.

Government Contracts

SYNOPSIS OF PROPOSED PROCUREMENT

ARMY

Commanding Officer, Chicago QM Purchasing Center, 1819 West Pershing Road, Chicago 9, Ill.
DISPENSERS, DRINKING WATER, Mechanically Cooled, Various types and Sizes—1130 each—IFB 56-276B(B)—Bid Opening 27 Mar 56.
Commanding General, Columbus General Depot, Columbus 15, Ohio, Attn: Purchasing Division, QM Parts Center.
REFRIGERATOR, MECHANICAL, Type I, size 8 hinged left and right side, Fed Spec AA-R-211C—1107 ea—IFB 56-227B—Bid Opening 10 Apr 56.

NAVY

District Public Works Office, Eleventh Naval District, San Diego, Calif.
AIR CONDITIONING Del Mar Telephone Exchange, including Heating, Cooling, Humidity Controls and Ducts, Miscellaneous Related Work, Marine Corps Base, Camp Pendleton, Cal. Deposit of $25 required for plans and Specifications—Job—IFB 4118/56B—Bid Opening 6 Apr 56.
District Public Works Office, Fourth Naval District, Bldg. 1, Second Floor, Naval Base Philadelphia, Pa.
AIR CONDITION SPACE SECTION D Bldg nr 7, Naval Air Station Depot, Phila. 10 dol deposit rqr for plans and Specs—Job—IFB 50978B—Bid Opening 12 Apr 56.

AIR FORCE

Procurement and Contracting Office, Vance Air Force Base, Okla.
AIR CONDITIONING OF HOSPITAL BUILDINGS T-808 and T-809 Vance Air Force Base, Okla.—Job—IFB 45-600-56-26—Bid Opening 2 Apr 56.

GENERAL SERVICES ADMINISTRATION

General Services Administration, Region 4, Business Service Center, 50 Seventh Street, N.E., Atlanta, Ga.
AIR CONDITION EDPM Room Second Floor, Asheville, N. C., Grove Arcade Building—Job—IFB CR4-1281—Bid Opening 3-28-56.
General Services Administration, Region 3, Business Service Center, 7th & D Sts., S.W., Washington 25, D. C.
The following item is procured under IFB R2D-73428-R—Bid Opening 3-28-56.
AIR CONDITIONING UNITS, package type, 5 ea.—Cooling Towers, 3 ea.

Doremus of Detroit Ice Machine Dies

DETROIT—Robert C. Doremus, 65, chief engineer and secretary of Detroit Ice Machine Co., died here recently.

A Detroit resident for 37 years, Doremus was past president and educational director of the Michigan chapter of National Association of Practical Refrigerating Engineers, a former secretary of American Society of Refrigerating Engineers, and member of the Engineering Society.

Services were held here, burial was in Binghamton, N. Y.

Westinghouse--

(Concluded from Page 1, Col. 5)

yond the pre-strike levels, Witting reported.

Reports from the Westinghouse appliance plants are:

Mansfield, Ohio—Major appliances and electric housewares:

"A substantial back-to-work movement at this plant since Dec. 5 has enabled the virtual elimination of warehouse inventories; and at the same time, limited production of 1956 models has been possible for several weeks, and product has been shipped immediately.

"Shipments of raw materials and parts have been received at the plant, eliminating any delay in starting production lines.

"In order to increase production above the pre-strike level in the coming months, the plant will hire over 1,000 more employes than were employed when the strike began in October."

Columbus, Ohio — Refrigerators, freezers, and washer-dryer combinations:

"Well over half of the employes returned to work during the strike, and refrigerators have been in substantial production for many weeks. Although inventories are currently quite low, full production will be resumed rapidly."

Newark, Ohio—Appliance replacement parts:

"Shipments of repair parts from our Renewal Parts Center in Newark, due to the back-to-work movement, have been made at normal pre-strike rate since Dec. 5 and back-orders accumulated during the period Oct. 15 to Dec. 5 have been substantially reduced.

"A few parts are in critical back-order position, due to strike conditions in other plants. Present inventories are only slightly below average because we have received substantial parts shipments from Mansfield, Columbus, and Springfield.

"Except for a few critical parts items, service on Westinghouse appliances has been close to normal during the strike."

Springfield, Mass.—Room air conditioners, dehumidifiers, water coolers, fans, and vacuum cleaners:

"Warehouse shipments were made during the strike and current inventories are therefore extremely low.

Air Conditioned Clothing Plant--

(Concluded from Page 1, Col. 4)

president of H. Daroff & Sons, one of the major benefits of the G-E air conditioning and dehumidifying system in the plant will be greater comfort for the factory workers with elimination of lost production hours, due to excessive heat and other weather conditions.

This will mean a greater degree of control over planned production schedules. Daroff pointed out that during the past few summers the exceedingly hot weather caused thousands of man hours to be lost because employes could not function. As a result, production of thousands of garments were lost; and the plant was bottlenecked in its effort to produce and deliver on a planned schedule.

"It has been well-known for generations of clothing manufacturers that one of the most important factors in producing good clothing is controlled humidity," the announcement noted. "Too little moisture creates problems of static . . . too much moisture destroys all benefits of the pressing operations, which are so essential in producing garments of good appearance."

Controlled humidity will solve these problems, Daroff said.

"With air conditioning, workmanship will improve, due to the better health and morale of the workers.

"The investment of half a million dollars for General Electric air conditioning in our plant is a great deal of money, but we are completely confident that the benefits in increased efficiency, greater productivity, and in health and morale of the workers will make it the wisest investment we have ever made."

You've Never Seen Anything Like It Before!

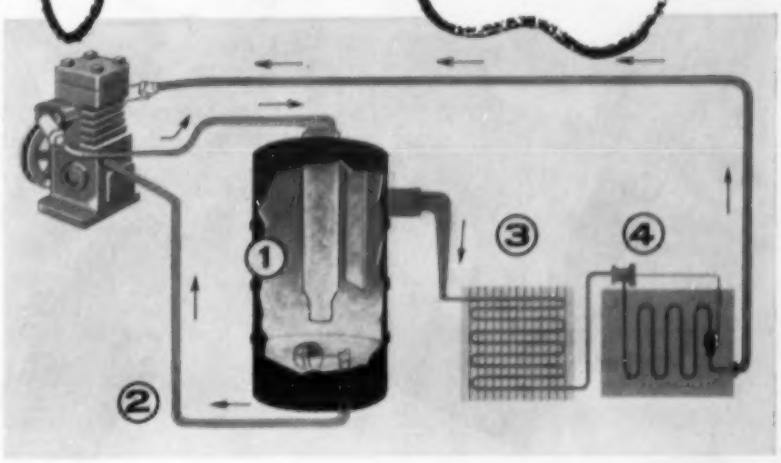
AN ACID SCALE REMOVER SAFE ENOUGH TO USE ON GALVANIZE!

No scale remover ever made can give you the concentrated cleaning power of VAPCO . . . plus this added safety.

You can prove it to yourself. Ask your wholesaler for a demonstration today, or write

GARMAN COMPANY, INC. St. Louis 23, Mo.

Keep Oil **IN** *the Compressor and* **OUT** *of the Highside!*



use Temprite Oil Separators

Save time, cost, trouble . . . protect your customers and yourself by installing Temprite Oil Separators with *every* refrigeration system. Unit *automatically* returns oil to the compressor; keeps oil *out* of the evaporator and condenser walls, permitting refrigerant to boil at true boiling point. Accurate valve operation and maximum heat transfer is assured at all times. Power consumption is held to a minimum . . . efficiency increased *up to 20%!*

Temprite Oil Separators used with F-12 and F-22 refrigerants. Capacities from 1/6 to 225 tons.

1 Separator filters oil, removing dirt and scale to prevent scoring of cranks, pins or cylinders in the compressor. Separator also muffles sound.

2 Separator returns oil to compressor —where it belongs! Proper oil level is maintained in crankcase, lengthening compressor life.

3 Only oil-free gas passes to condenser and evaporator. Refrigerant thus remains at true condensing point, keeping head pressure normal.

4 With Temprite Separator, desired temperatures are quickly reached and at correct lowside pressure with no increase in operating time!

Temprite SINCE 1929

TEMPRITE PRODUCTS CORPORATION
P.O. Box 72-A • E. Maple Rd. • Birmingham, Mich.
Please send me complete data on Temprite Oil Separators.
Name_____
Address_____
City_____ State_____

EDWARDS
CO-AXIAL FREON CONDENSERS
The **LATEST** DESIGN
IN WATER-COOLED
FREON CONDENSERS
—give you these **SELLING** advantages:

A TYPICAL CONFIGURATION—EFFICIENT, COMPACT, DESIGN

1. **They use 35% LESS WATER**
2. **Cost reduced 30-40%**
3. **Stock sizes—1 to 7 ton**
4. **Many compact configurations**
5. **Easy installation**
6. **Simplified connections**
7. **Economical operation**

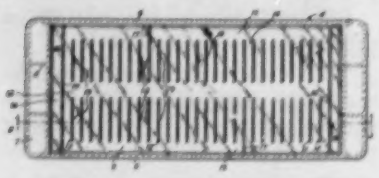
Send for catalog TT-625 *TODAY—or call* TERHUNE 5-2808

EDWARDS ENGINEERING CORP. 100 ALEXANDER AVENUE POMPTON PLAINS, NEW JERSEY

PATENTS

Week of October 18 (Continued)

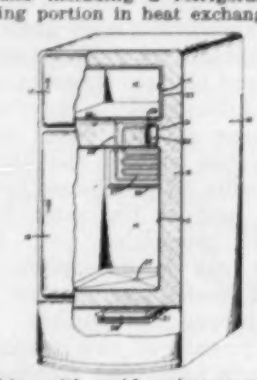
2,720,760. ICE CHIPPING AND FLAKING TRAY. Joseph G. Nigro, Chicago, Ill., assignor to Gits Molding Corp., Chicago, Ill., a corporation of Illinois. Application June 5, 1953, Serial No. 359,877. 10 Claims. (Cl. 62—106.5.)



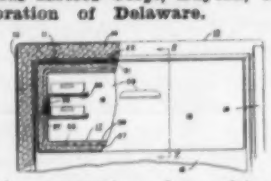
1. Tray means for producing ice chips, flakes and crystals, comprising a tray element including a bottom, sides and ends of flexible and resilient plastic material, provided with manipulating handle portions at each of said ends, a plurality of substantially parallel partition means, which are respectively secured to the bottom of said tray element, for dividing the liquid-retaining compartment of said tray element in part into a multiplicity of ice congealing compartments, each of wafer-like narrowness, said partition means being arranged in at least two rows which are spaced apart from the sides of said tray element and which are spaced apart from one another to define a perimetral ice congealing channel merging at each end of said tray element with at least one central ice congealing channel between said rows, said ice congealing compartments being of a size and shape such that ice congealed therein is of such thinness that said tray means, subsequent to the congealing of liquid therein to form ice, and when subjected to torsional strains and stresses by torsional movements caused by relative twisting of its handle portions with respect to each other, causes the ice formed therein to be resolved into ice chips, flakes and crystals of relatively small and irregular configuration readily miscible with liquids.

2,720,761. TWO TEMPERATURE REFRIGERATING APPARATUS. James W. Jacobs, Dayton, Ohio, assignor to General Motors Corp., Detroit, Mich., a corporation of Delaware. Application Dec. 13, 1952, Serial No. 325,813. 6 Claims. (Cl. 62—117.3.)

1. In combination, a primary refrigerating system including a refrigerant translating unit and an evaporator, a closed secondary refrigerating system containing a volatile refrigerant and including a refrigerant condensing portion in heat exchange relationship with said primary evaporator, a refrigerant evaporating portion, a conduit for conveying refrigerant evaporated in said evaporating portion into said condensing portion and means interposed between said portions for conveying refrigerant liquefied in said condensing portion into said evaporating portion and for causing said evaporating portion to produce a temperature below 32° F. and above 32° F. alternatively, said means comprising a siphoning device and a fixed restrictor for restricting flow of liquid refrigerant from the condensing portion of said secondary system into said siphoning device, said siphoning device receiving a predetermined amount of liquid refrigerant from said condensing portion of the secondary system and trapping the same therein, said siphoning device being rendered effective in response to an accumulation of more than said predetermined amount of liquid refrigerant therein for dumping substantially all of said trapped liquid refrigerant into the evaporating portion of said secondary system whereby its temperature falls below 32° F. and moisture deposits thereon in the form of frost or ice, and said restrictor delaying the accumulation of said more than said predetermined amount of liquid refrigerant in said siphoning device whereby the temperature of said evaporating portion of the secondary refrigerating system rises above 32° F. for defrosting the frost or ice therefrom.



2,720,762. EVAPORATOR FOR REFRIGERATING APPARATUS. Edmund F. Schweller, Dayton, Ohio, assignor to General Motors Corp., Dayton, Ohio, a corporation of Delaware.



1. An evaporator of a refrigerating system comprising a casing formed from a single flat rectangular piece of sheet metal having its mating ends brought into abutting relation and being shaped to provide the top, bottom and side walls of a cooling chamber, means for rigidly tying said ends of said sheet to one another, said metal sheet having portions along predetermined lines paralleling the length thereof crimped laterally therefrom and thence crimped back upon itself to provide spaced apart double walled ribs projecting outwardly from and extending substantially around all walls of said chamber, that portion of said sheet intermediate said ribs being parallel to and in alignment with walls of said chamber to provide substantially flat smooth surfaces along the interior thereof, said intermediate portion of said sheet cooperating with said ribs to provide a channel therebetween, a tube disposed in said channel, the outer edge of said double walled ribs being bent toward one another against said tube to rigidly clamp the tube to walls of said chamber, and said tube providing a sealed passage for conducting a refrigerant along said chamber walls.

2,720,763. EVAPORATOR FOR ABSORPTION TYPE REFRIGERATING SYSTEMS. Oscar Doebell, Zurich, Switzerland. Application May 16, 1952, Serial No. 288,142. Claims priority, application Switzerland May 16, 1951. 3 Claims. (Cl. 62—126.)

1. An evaporator for absorption type refrigerating systems; said evaporator comprising an elongated tube for receiving a liquid refrigerant at one end, and at least one layer of a glass fiber fabric disposed in said tube and in contact with the internal surface of said tube along the bottom of the latter, the remainder of said internal surface of the tube being bare so that said last fibre fabric conducts the liquid refrigerant along said tube by capillary action from said one end to the other end of said tube and serves to laterally constrain the liquid refrigerant to the bottom of the tube.

(To Be Continued)

Meyer Lubotsky Dies; Was Distributor, Dealer

MILWAUKEE—Meyer Lubotsky, 58, president of State Distributing Co., major appliance distributor, and of the three Meyer appliance and tire stores, died recently of a heart attack while vacationing in Tucson.

Lubotsky's firms grew out of a small tire repair service he started after World War I. He was also founder and president of Electro Tire Recapping Corp. and founder of the Appliance Tire & Rubber Co. of Israel.

CLASSIFIED ADVERTISING

RATES for "Positions Wanted" $7.50 per insertion. Limit 50 words. 15¢ per word over 50.

RATES for all other classifications $10.00 per insertion. Limit 50 words. 20¢ per word over 50.

ADVERTISEMENTS set in usual classified style. Box addresses count as five words, other address by actual word count. Please send payment with order.

POSITIONS WANTED

AIR CONDITIONING service and installation manager available immediately. Experienced to set up and supervise all types of installations with a minimum amount of engineering aid. Also top mechanics at my command. Only highly recognized concerns considered. Personal interview only. Write BOX A5496, Air Conditioning & Refrigeration News.

POSITIONS AVAILABLE

SERVICE MANAGER and application engineer for large heating and air conditioning contractor. To handle air conditioning service routing and installation engineering details. Good opportunity for right man. Bonus and retirement plans. State experience and educational background. ADVANCE HEATING & AIR CONDITIONING CORPORATION, 117 North Desplaines Street, Chicago 6, Illinois.

WANTED: AIR conditioning and refrigeration field man who will accept responsibility of supervising the erection and installation of air conditioning and refrigeration systems. Opportunity to buy into business for good aggressive person. Write THE DIXON COMPANY, 9 Center Place, Williamsport, Pennsylvania.

REFRIGERATING AND air conditioning engineers wanted for positions in branch offices and home office. Graduates in Mechanical Engineering preferred. Eighteen months' training courses available for new men; experienced engineers also wanted. Excellent opportunities, paying salary and commissions. Write to Personnel Director, FRICK COMPANY, Waynesboro, Pennsylvania.

MANUFACTURERS' REPRESENTATIVE with commercial refrigeration experience, now covering Michigan, Indiana, Midwestern or Southwestern states, to sell fast-growing line of commercial equipment. Write PAUL R. STEWART, 1712 John Street, Cincinnati 14, Ohio.

FIELD SERVICE engineer required by food store fixture manufacturer. Must be free to travel, with 10 or more years' experience in commercial refrigeration and electricity necessary. Salary, expenses, life insurance, hospitalization insurance and other benefits. 30 to 40 years of age. Willing to move when the need arises. This company is growing and expanding its operation every year. Send photo and full facts regarding work experience, age, family status, etc. Reply to BOX A5450, Air Conditioning & Refrigeration News.

FIELD SALES managers—A leading manufacturer of residential air conditioning and heating equipment has several openings for experienced men due to major expansion. Address reply to BOX A5473, Air Conditioning & Refrigeration News.

FIELD ENGINEERS—A leading manufacturer of residential air conditioning and heating equipment has several openings for experienced men due to major expansion. Address reply to BOX A5474, Air Conditioning & Refrigeration News.

APPLICATION ENGINEERS — Home Office: A leading manufacturer of residential air conditioning and heating equipment has several openings for experienced men due to major expansion. Address reply to BOX A5475, Air Conditioning & Refrigeration News.

AIR CONDITIONING man experienced in calculating and estimating year-round air conditioning for a large national plumbing and heating concern located in Central Ohio. State experience and all particulars. Good salary and opportunity. BOX A5488, Air Conditioning & Refrigeration News.

WANTED — TWO district managers: One to be located in Metropolitan New York area and one in San Francisco. To supervise sales offices of prominent manufacturer of heating, cooling, and air conditioning equipment of East and West Coast areas. Send complete resume of education, experience, and salary requirements, to BOX A5489, Air Conditioning & Refrigeration News.

DESIGN ENGINEER—For commercial refrigerators—At least 5 years' sheet metal experience — Eastern manufacturer of restaurant and market equipment—Needs top-notch man—capable of supervising model shop and assuming responsibility—Company growth makes this opportunity available. Write to BOX A5490, Air Conditioning & Refrigeration News.

REPRESENTATIVES WANTED: We have several mid-western and southern territories open for manufacturers representatives to sell a fast moving air conditioning accessory to wholesale outlets. If you are now calling on air conditioning equipment and supply houses, this is a natural for you. BOX A5491, Air Conditioning & Refrigeration News.

REGIONAL ENGINEER: A large well-known manufacturer of heating and cooling equipment has an opening for a regional engineer. Interested applicants must have good knowledge of the application, installation and servicing of heating and cooling equipment for both the residential and commercial fields. Must be willing to travel. Area to be covered consists of the middle Atlantic states and New England. Successful applicant will be expected to locate centrally in this area. The man we are looking for is the type presently employed as a sales engineer for a large manufacturer of heating and air conditioning equipment. Our organization knows of this advertisement and your responses will be held in strictest confidence. In replying, please include a resume of your background, experience and salary requirements. Reply to BOX A5494, Air Conditioning & Refrigeration News.

EQUIPMENT FOR SALE

SERVICEMEN'S THERMOMETERS: Mercury filled with pocket cases, range -60° to plus 160° F. Mfg. by Taylor and G. M. Price $10.80 per dozen postpaid. H. L. BOGGESS & SONS, Liberty, Missouri, P.O. Box 137.

NEW IMPROVED Kesco automatic condensate water disposal pumps, for air conditioners, ice-cube bins and drinking fountains, featuring a 9 in. high 3 gallon welded heavy steel hot dipped galvanized tank, with 2 gallon emergency reservoir; ¾ pipe inlet 1½ inches from floor. 4 inches water in tank starts pump. At your local wholesaler.
MT. VERNON, Eastern Supply, 521 East Third Street
NEW YORK, Abco Refrigeration, 1615 Second Avenue
WHITE PLAINS, County Seat, 111 Central Avenue
DAYTON, OHIO, W. H. Kiefaber Co., Refrigeration Department
SACRAMENTO, CALIF., Associated Refrigeration, 1717 Eye Street.

NATIONALLY-FAMOUS HERMETIC units at fabulous discounts! ¼ h.p. to ⅓ h.p. domes from $29.50. Hermetic units with air-cooled finned condenser attached, ⅓ and ½ h.p., from $34.50. Complete unit assembly with fan-cooled condenser (less dome) for use with ⅓, ½ or ¾ h.p. dome, only $9.00. ¼ h.p. static condensers—95¢ each. Many other parts at equal savings. All equipment brand new, ready for immediate shipment. Write or phone for descriptive literature. MANN REFRIGERATION SUPPLY CO., 440 Lafayette St., New York, N. Y.

AIR CONDITIONING value: 2 h.p. hermetic compressor F-12 230V. 1/phase HD200. 2 h.p. air cond. evaporator 23½" L x 16" H x 3⅛" W. 2 h.p. air cond. condenser 24" L x 24" H x 4½" W. Also included 2 ton F-12 T. X. Valve & dual pressure safety cutout switch. Complete matched component kit as described $179.50. Freight prepaid anywhere in the continental U. S. A. WALTER W. STARR, 2833 Lincoln Ave., Chicago 13, Illinois.

BUSINESS OPPORTUNITIES

ATTENTION MANUFACTURERS wanting representation in Canada. Organization available to create interest in your product and also establish representation from coast to coast by one or more distributors or wholesalers. Realize volume sales in Canada's fast growing market. We have contact with companies wishing new lines. BOX A5495, Air Conditioning & Refrigeration News.

"I always depend on DELCO PRODUCTS . . . it's the one complete electric motor source for our business."

Delco Products makes more models and types of motors for the air conditioning industry than any other manufacturer. For quick delivery call your nearby Delco Products Electric Motor Distributor.

DELCO Electric MOTORS
DELCO PRODUCTS, DIVISION OF GENERAL MOTORS, DAYTON, OHIO
Proved best by Performance!

LIQUID EYE®
POSITIVE SEALING INDICATORS
can be made to your exact specifications
Allin engineering recently solved a leading manufacturer's tough problem on automobile air conditioning with this "MIDGET" LIQUID EYE

Illustrated: 3/8" M.P.T. x 3/8" M.FL.

A few of the important LIQUID EYE features: spring-loaded gaskets for positive sealing against leakage • unrestricted full line flow • pyrex glass, double sealed at sides and ends, provides instant visible check of refrigerant condition • guaranteed to 500 psi. • precision made.
One or more of the wide variety of standard Liquid Eye sizes and styles may meet your needs perfectly—or we'll make them to your particular specifications.
Write today for Catalog D-55 containing the Allin line of quality products.

Allin MANUFACTURING COMPANY 1153 W. Grand Ave. Chicago 22, Illinois
Almost 1,000,000 Liquid Eye indicators sold to date!

For more information about products advertised on this page use Information Center, page 22.

Sell any butchers recently . . . ?

Survey of independent food stores indicates contractor-dealers face stiff competition ahead

A recent survey of 216 independent food stores in the highly-industrialized Flint (Mich.) area* showed "a considerable amount of salesmanship" needed to sell the commercial refrigeration market. Local contractor-dealers who make over 90 per cent of these installations need the product information, engineering changes and improvements factory advertising carries to remain competitive. AIR CONDITIONING & REFRIGERATION NEWS can help you back your contractor-dealers.

Commercial refrigeration contractor-dealers turn to AIR CONDITIONING & REFRIGERATION NEWS as the only publication in the field which can provide them with the information they must have to stay competitive. In Detroit, for example, 70 per cent of contractor-dealers—making 80 per cent of all installations—are paid NEWS subscribers.

If you want to sell the butcher—or the store manager, the shop keeper, the tavern owner—sell the local contractor-dealer first. He's the man who controls the bulk of the commercial refrigeration market. And he reads "the newspaper of the industry," AIR CONDITIONING & REFRIGERATION NEWS. So, do the first job where the first job is being done—in the NEWS!

*Part of a comprehensive and continuing market study conducted by AIR CONDITIONING & REFRIGERATION NEWS.

AIR CONDITIONING & REFRIGERATION **NEWS**

The Newspaper of the Industry

The Newspaper That Carries More Advertising By Far Than Any Other Publication In The Field.

450 West Fort Street, Detroit 26, Michigan

NEW YORK, 521 Fifth Ave., MUrray Hill 7-7158, Robert M. Price.
CHICAGO, 134 S. LaSalle St., FRanklin 2-8093, Allen Schildhammer.
DETROIT, 450 West Fort St., WOodward 2-0924, J. B. Sullivan.

For more information about products advertised on this page use Information Center, page 22.

SHOWN IS RCA-Whirlpool vertical freezer model.

RCA-Whirlpool--

(Concluded from Page 1, Col. 3)

erating conditions, regardless of surrounding outside temperature. Dry cabinet construction prevents sweating and keeps exterior walls completely dry.

Differing only in size, the vertical models feature a storage door with utility shelf, food package dispensers, and juice can dispensers; two roll-out baskets and three large shelves.

Freezing coils are spaced on four fast-freezing surfaces including the three shelves. A pull-out disposal tube at bottom of cabinet removes defrost water.

Incorporating 21.1 sq. ft. of shelf area, the top of the line 19-cu. ft. upright unit holds 665 lbs. of frozen food. Cabinet height is 72¼ in. and width 36½ in.

A 14.7-cu. ft. model has a 518-lb. capacity and 17 sq. ft. of shelf area. It is 68½ in. high and 29½ in. wide. Over-all depth of both models is 31 13/16 in.

The three chest units feature lift-out wire baskets designed to hold 17 lbs each, and removable dividers.

Freezing coils are spaced around all seven inside surfaces. There is a fast-freeze compartment for food processing.

A counterbalanced lid opens at a touch and stays open. A wide breaker strip doubles as a shelf on which to place baskets when food is added or removed.

The 20-cu. ft. model stores 700 lbs. of food. It is 78½ in. long.

A 16-cu. ft. model is 65⅜ in. long and has 560 lbs. capacity. A 12-cu. ft. model, 52¼ in. long, has a full 420-lb. food storage capacity. All three units are 37 in. high and 31 3/16 in. deep.

Quiet, fanless operation is a feature of all RCA Whirlpool freezers. Other features include interior light, safety signal light, stirrup-type handle with lock.

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Detroit Seeks Fee for 'Water-Wasters'--

(Concluded from Page 1, Col. 4)

erating capacity would be levied. The annual rate would jump to $10 on Jan. 1, 1958, and to a full charge of $15 per ton on Jan. 1, 1959.

Suburban communities would be required to establish these same rates "unless they wish to adopt more stringent regulations which prevent the use of non-water-conserving equipment entirely," the announcement said.

The use demand charge would apply to air conditioning systems used for human comfort.

The proposed new rate is based on the cost of supplying water to meet the demand imposed on the water system by water-wasting air conditioning equipment, according to Remus.

"Water-wasting air conditioners place a very high additional demand on pumping and filtering equipment," it was stated. "This added demand comes right at the time of day when other water needs are also at their peak. It is too much for the system to handle.

"The problem caused by water-wasting air coolers is that almost 95% of them are in use during the hours of the heaviest demand for water.

"Last year the total horsepower of air coolers in use in Detroit increased about 10% over the year before," the statement continued.

"Experts calculate that each ton of refrigeration furnished by non-water-conserving equipment uses about two gallons of water a minute. During the peak water demand periods in Detroit last summer, eight million gallons of water an hour were used by air conditioning units.

"During the hours of maximum demand, over 20% of the water pumped went to supply air conditioners. This means that over one-fifth of the entire water production facilities had to be used to supply water for air coolers.

This amount of water could supply the domestic water needs of 800,000 people living in the area.

"Before Detroit's water users find themselves in a really tough spot, officials want to encourage the use of air conditioning devices which conserve water. A future water crisis can be forestalled by taking action on the problem today.

"Even though water rates in Detroit are extremely low, the amount of water consumed by non-conserving equipment is so great that the users have to pay a good size water bill," it was stated. "The application of the demand charge is expected to speed up the change over to the 'conserving' type of air cooling installations."

Copper Prices-

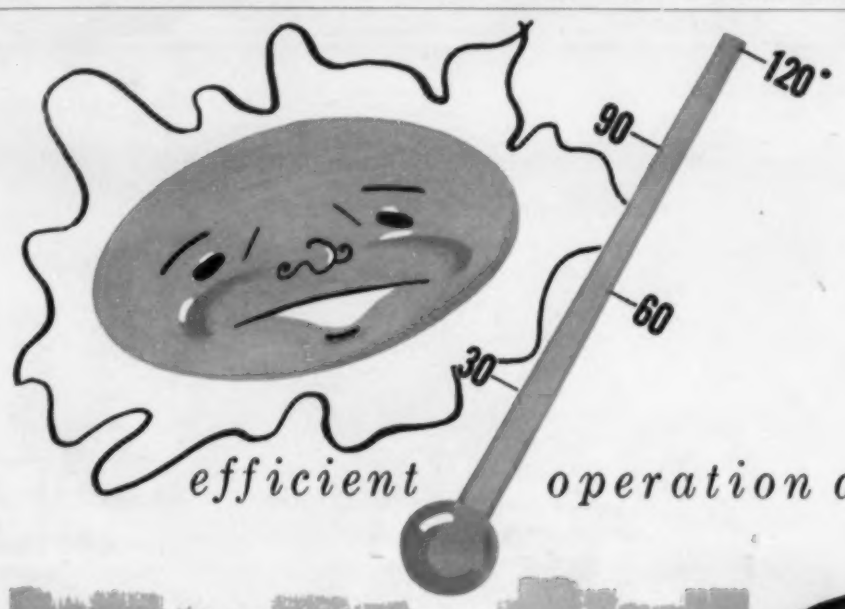
(Concluded from Page 1, Col. 2)

were announced last week.

In another development, Anaconda Co., largest producer of copper in Chile, announced it will sell all its Chilean production at prices based on the London Metal Exchange quotations, whether sales are to U. S. industry or abroad.

About a third of Chile's production has been coming to American industry at the 46-cent price of U. S. domestic producers, with the rest going to the much better paying foreign market. This third is equal to slightly less than 10% of the 139,400 tons total copper used last month in the U. S.

Copper for spot delivery in official dealings on the London Metal Exchange was recently priced at roughly 8½ cents above the U. S. 46-cent price.



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